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Sir:

Transmitted herewith for filing under 37 CFR 1.53(b) is the

- ☒ patent application of
☐ continuation patent application of
☐ divisional patent application of
☐ continuation-in-part patent application of

Inventor(s)/Applicant Identifier: Alessandro Sette, John Sidney, Scott Southwood, Robert Chesnut,
 Esteban Celis and Howard M. Grey



For: **INDUCING CELLULAR IMMUNE RESPONSES TO HUMAN PAPILLOMAVIRUS
 USING PEPTIDE AND NUCLEIC ACID COMPOSITIONS**

- ☒ This application claims priority from each of the following Application Nos./filing dates:
60/172,705 filed December 10, 1999

the disclosure(s) of which is (are) incorporated by reference.

Please amend this application by adding the following before the first sentence: "This application is a ☐ continuation ☐ continuation-in-part of and claims the benefit of U.S. Provisional Application No. 60/_____, filed _____, the disclosure of which is incorporated by reference."

Enclosed are:

- ☒ 1177 page(s) of specification
☒ 4 page(s) of claims
☒ 1 page of Abstract
☐ _____ sheet(s) of ☐ formal ☐ informal drawing(s).
☐ An assignment of the invention to _____
☒ A ☐ signed ☒ unsigned Declaration & Power of Attorney
☐ A ☐ signed ☐ unsigned Declaration.
☐ A Power of Attorney.
☐ A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27 ☐ is enclosed ☐ was filed in the prior application and small entity status is still proper and desired.
☐ A certified copy of a _____ application.
☐ Information Disclosure Statement under 37 CFR 1.97.
☐ A petition to extend time to respond in the parent application.
☐ Notification of change of ☐ power of attorney ☐ correspondence address filed in prior application.
☒ Return postcard.

In view of the Unsigned Declaration as filed with this application and pursuant to 37 CFR §1.53(f),
 Applicant requests deferral of the filing fee until submission of the Missing Parts of Application.

DO NOT CHARGE THE FILING FEE AT THIS TIME.

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PATENT APPLICATION

**INDUCING CELLULAR IMMUNE RESPONSES TO HUMAN
PAPILLOMAVIRUS USING PEPTIDE AND NUCLEIC ACID COMPOSITIONS**

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**INDUCING CELLULAR IMMUNE RESPONSES TO HUMAN PAPILLOMAVIRUS
USING PEPTIDE AND NUCLEIC ACID COMPOSITIONS****CROSS-REFERENCES TO RELATED APPLICATIONS**

The present application claims priority to U.S.S.N. 60/172,705 filed 12/10/99. The
10 application is also related to U.S.S.N. 09/189,702, filed 11/10/98, which is a CIP of U.S.S.N.
08/205,713 filed 3/4/94, which is a CIP of abandoned U.S.S.N. 08/159,184 filed 11/29/93,
which is a CIP of abandoned U.S.S.N. 08/073,205 filed 6/4/93 which is a CIP of abandoned
U.S.S.N. 08/027,146 filed 3/5/93. Additionally, the present application is related to U.S.S.N.
09/226,775, which is a CIP of abandoned U.S.S.N. 08/815,396, which claims benefit of
15 abandoned U.S.S.N. 60/013,113. Furthermore, the present application is related to U.S.S.N.
09/017,735, which is a CIP of abandoned U.S.S.N. 08/589,108; U.S.S.N. 08/454,033; and
U.S.S.N. 08/349,177. The present application is also related to U.S.S.N. 09/017,524,
U.S.S.N. 08/821,739, which claims benefit of abandoned U.S.S.N. 60/013,833; and U.S.S.N.
08/347,610, which is a CIP of U.S.S.N. 08/159,339, which is a CIP of abandoned U.S.S.N.
20 08/103,396, which is a CIP of abandoned U.S.S.N. 08/027,746, which is a CIP of abandoned
U.S.S.N. 07/926,666. The present application is also related to U.S.S.N. 09/017,743, which
is a CIP of abandoned U.S.S.N. 08/590,298; and U.S.S.N. 08/452,843, which is a CIP of
U.S.S.N. 08/344,824, which is a CIP of abandoned U.S.S.N. 08/278,634. The present
application is also related to PCT application 99/12066 filed 5/28/99 which claims benefit of
25 provisional U.S.S.N. 60/087,192; U.S.S.N. 09/009,953, which is a CIP of abandoned
U.S.S.N. 60/036,713; and abandoned U.S.S.N. 60/037,432. In addition, the present
application is related to U.S.S.N. 09/098,584; U.S.S.N. 09/239,043; U.S.S.N. 60/117,486;
U.S.S.N. 09/350,401; U.S.S.N. 09/357,737; and U.S.S.N. 09/390,061. All of the above
applications are incorporated herein by reference.

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FEDERALLY SPONSORED RESEARCH AND DEVELOPMENT

This invention was funded, in part, by the United States government under grants
with the National Institutes of Health. The U.S. government has certain rights in this
invention.

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I. BACKGROUND OF THE INVENTION

Human papillomavirus (HPV) is a member of the papillomaviridae, a group of small DNA viruses that infect a variety of higher vertebrates. More than 80 types of HPVs have been identified. Of these, more than 30 can infect the genital tract.

- 5 Some types, generally types 6 and 11, may cause genital warts, which are typically benign and rarely develop into cancer. Other strains of HPV, "cancer-associated", or "high-risk" types, can lead to the development of cancer.

- 10 Cancer-associated HPVs have been linked with cancer in both men and women; they include, but are not limited to, HPV-16, HPV-18, HPV-31, HPV-45, HPV-33 and HPV-56. Other HPV strains, including types 6 and 11 as well as others, *e.g.*, HPV-5 and HPV-8, are less frequently associated with cancer. The high risk types are typically associated with the development of cervical carcinoma and premalignant lesions of the cervix in women, but are also associated with similar malignant and premalignant lesions at other anatomic sites within the lower genital or anogenital tract. These lesions
- 15 include neoplasia of the vagina, vulva, perineum, the penis, and the anus. HPV infection has also been associated with respiratory tract papillomas, and rarely, cancer, as well as abnormal growth or neoplasia in other epithelial tissues. *See, e.g.* VIROLOGY, 2ND ED, Fields *et al.*, Eds. Raven Press, New York, 1990, Chapters 58 and 59, for a review of HPV association with cancer.

- 20 The HPV genome consists of three functional regions, the early region, the late region, and the "long control region". The early region gene products control viral replication, transcription and cellular transformation. They include the HPV E1 and E2 proteins, which play a role in HPV DNA replication, and the E6 and E7 oncoproteins, which are involved in the control of cellular proliferation. The late region include the
- 25 genes that encode the structural proteins L1 and L2, which are the major and minor capsid proteins, respectively. The "long control region" contains such sequences as enhancer and promoter regulatory regions.

- HPV expresses different proteins at different stages of the infection, for example early, as well as late, proteins. Even in latent infections, however, early proteins
- 30 are often expressed and are therefore useful targets for vaccine-based therapies. For example, high-grade dysplasia and cervical squamous cell carcinoma continue to express E6 and E7, which therefore can be targeted to treat disease at both early and late stages of infection.

Treatment for HPV infection is often unsatisfactory because of persistence of virus after treatment and recurrence of clinically apparent disease is common. Thus, a need exists for an efficacious vaccine to both prevent and treat HPV infection and to treat cancer that is associated with HPV infection. Effective HPV vaccines would be a significant advance in the control of sexually transmissible infections and could also protect against clinical disease, particularly cancers such as cervical cancer. (see, e.g., Rowen, P. & Lacey, C., *Dermatologic Clinics* 16(4):835-838, 1998).

Virus-specific, human leukocyte antigen (HLA) class I-restricted cytotoxic T lymphocytes (CTL) are known to play a major role in the prevention and clearance of virus infections *in vivo* (Oldstone *et al.*, *Nature* 321:239, 1989; Jamieson *et al.*, *J. Virol.* 61:3930, 1987; Yap *et al.*, *Nature* 273:238, 1978; Lukacher *et al.*, *J. Exp. Med.* 160:814, 1994; McMichael *et al.*, *N. Engl. J. Med.* 309:13, 1983; Sethi *et al.*, *J. Gen. Virol.* 64:443, 1983; Watari *et al.*, *J. Exp. Med.* 165:459, 1987; Yasukawa *et al.*, *J. Immunol.* 143:2051, 1989; Tigges *et al.*, *J. Virol.* 66:1622, 1993; Reddenhase *et al.*, *J. Virol.* 55:263, 1985; Quinnan *et al.*, *N. Engl. J. Med.* 307:6, 1982). HLA class I molecules are expressed on the surface of almost all nucleated cells. Following intracellular processing of antigens, epitopes from the antigens are presented as a complex with the HLA class I molecules on the surface of such cells. CTL recognize the peptide-HLA class I complex, which then results in the destruction of the cell bearing the HLA-peptide complex directly by the CTL and/or via the activation of non-destructive mechanisms e.g., the production of interferon, that inhibit viral replication.

Virus-specific T helper lymphocytes are also known to be critical for maintaining effective immunity in chronic viral infections. Historically, HTL responses were viewed as primarily supporting the expansion of specific CTL and B cell populations; however, more recent data indicate that HTL may directly contribute to the control of virus replication. For example, a decline in CD4⁺ T cells and a corresponding loss in HTL function characterize infection with HIV (Lane *et al.*, *New Engl. J. Med.* 313:79, 1985). Furthermore, studies in HIV infected patients have also shown that there is an inverse relationship between virus-specific HTL responses and viral load, suggesting that HTL plays a role in viremia (see, e.g., Rosenberg *et al.*, *Science* 278:1447, 1997).

The development of vaccines with prophylactic and therapeutic efficacy against HPV is ongoing. Early vaccine development was hampered by the inability to culture HPV. With the introduction of cloning techniques and protein expression, however, some attempts have been made to stimulate humoral and CTL response to HPV

(See, e.g., Rowen, P. & Lacey, C., *Dermatologic Clinics* 16(4):835-838 (1998)). Studies to date, however, have been inconclusive.

Activation of T helper cells and cytotoxic lymphocytes (CTLs) in the development of vaccines has also been analyzed. Lehtinen, M., *et al.* for instance, has shown that some peptides from the E2 protein of HPV type 16 activate T helper cells and CTLs (*Biochem. Biophys. Res. Commun.* 209(2):541-6 (1995)). Similarly, Tarpey *et al.*, has shown that some peptides from HPV type 11 E7 protein can stimulate human HPV-specific CTLs *in vitro* (*Immunology* 81:222-227 (1994)) and Borysiewicz *et al.* have reported a recombinant vaccinia virus expressing HPV 16 and HPV 17 E6 and E7 that stimulated CTL responses in at least one patient (*Lancet* 347:1347-1357, 1996).

The epitope approach, as we have described, allows the incorporation of various antibody, CTL and HTL epitopes, from various proteins, in a single vaccine composition. Such a composition may simultaneously target multiple dominant and subdominant epitopes and thereby be used to achieve effective immunization in a diverse population.

The information provided in this section is intended to disclose the presently understood state of the art as of the filing date of the present application. Information is included in this section which was generated subsequent to the priority date of this application. Accordingly, information in this section is not intended, in any way, to delineate the priority date for the invention.

II. SUMMARY OF THE INVENTION

This invention applies our knowledge of the mechanisms by which antigen is recognized by T cells, for example, to develop epitope-based vaccines directed towards HPV. More specifically, this application communicates our discovery of specific epitope pharmaceutical compositions and methods of use in the prevention and treatment of HPV infection.

Upon development of appropriate technology, the use of epitope-based vaccines has several advantages over current vaccines, particularly when compared to the use of whole antigens in vaccine compositions. There is evidence that the immune response to whole antigens is directed largely toward variable regions of the antigen, allowing for immune escape due to mutations. The epitopes for inclusion in an epitope-based vaccine may be selected from conserved regions of viral or tumor-associated antigens, which thereby reduces the likelihood of escape mutants. Furthermore,

immunosuppressive epitopes that may be present in whole antigens can be avoided with the use of epitope-based vaccines.

An additional advantage of an epitope-based vaccine approach is the ability to combine selected epitopes (CTL and HTL), and further, to modify the composition of the epitopes, achieving, for example, enhanced immunogenicity. Accordingly, the immune response can be modulated, as appropriate, for the target disease. Similar engineering of the response is not possible with traditional approaches.

Another major benefit of epitope-based immune-stimulating vaccines is their safety. The possible pathological side effects caused by infectious agents or whole protein antigens, which might have their own intrinsic biological activity, is eliminated.

An epitope-based vaccine also provides the ability to direct and focus an immune response to multiple selected antigens from the same pathogen. Thus, patient-by-patient variability in the immune response to a particular pathogen may be alleviated by inclusion of epitopes from multiple antigens from the pathogen in a vaccine composition. In the case of HPV, epitopes derived from multiple strains may also be included. A "pathogen" may be an infectious agent or a tumor associated molecule.

One of the most formidable obstacles to the development of broadly efficacious epitope-based immunotherapeutics, however, has been the extreme polymorphism of HLA molecules. To date, effective non-genetically biased coverage of a population has been a task of considerable complexity; such coverage has required that epitopes be used that are specific for HLA molecules corresponding to each individual HLA allele. Impractically large numbers of epitopes would therefore have to be used in order to cover ethnically diverse populations. Thus, there has existed a need for peptide epitopes that are bound by multiple HLA antigen molecules for use in epitope-based vaccines. The greater the number of HLA antigen molecules bound, the greater the breadth of population coverage by the vaccine.

Furthermore, as described herein in greater detail, a need has existed to modulate peptide binding properties, *e.g.*, so that peptides that are able to bind to multiple HLA antigens do so with an affinity that will stimulate an immune response. Identification of epitopes restricted by more than one HLA allele at an affinity that correlates with immunogenicity is important to provide thorough population coverage, and to allow the elicitation of responses of sufficient vigor to prevent or clear an infection in a diverse segment of the population. Such a response can also target a broad array of epitopes. The technology disclosed herein provides for such favored immune responses.

In a preferred embodiment, epitopes for inclusion in vaccine compositions of the invention are selected by a process whereby protein sequences of known antigens are evaluated for the presence of motif or supermotif-bearing epitopes. Peptides corresponding to a motif- or supermotif-bearing epitope are then synthesized and tested for the ability to bind to the HLA molecule that recognizes the selected motif. Those peptides that bind at an intermediate or high affinity *i.e.*, an IC_{50} (or a K_D value) of 500 nM or less for HLA class I molecules or an IC_{50} of 1000 nM or less for HLA class II molecules, are further evaluated for their ability to induce a CTL or HTL response. Immunogenic peptide epitopes are selected for inclusion in vaccine compositions.

Supermotif-bearing peptides may additionally be tested for the ability to bind to multiple alleles within the HLA supertype family. Moreover, peptide epitopes may be analogued to modify binding affinity and/or the ability to bind to multiple alleles within an HLA supertype.

The invention also includes embodiments comprising methods for monitoring or evaluating an immune response to HPV in a patient having a known HLA-type. Such methods comprise incubating a T lymphocyte sample from the patient with a peptide composition comprising an HPV epitope that has an amino acid sequence described in Tables VII to Table XX which binds the product of at least one HLA allele present in the patient, and detecting for the presence of a T lymphocyte that binds to the peptide. A CTL peptide epitope may, for example, be used as a component of a tetrameric complex for this type of analysis.

An alternative modality for defining the peptide epitopes in accordance with the invention is to recite the physical properties, such as length; primary structure; or charge, which are correlated with binding to a particular allele-specific HLA molecule or group of allele-specific HLA molecules. A further modality for defining peptide epitopes is to recite the physical properties of an HLA binding pocket, or properties shared by several allele-specific HLA binding pockets (*e.g.* pocket configuration and charge distribution) and reciting that the peptide epitope fits and binds to the pocket or pockets.

As will be apparent from the discussion below, other methods and embodiments are also contemplated. Further, novel synthetic peptides produced by any of the methods described herein are also part of the invention.

III. DETAILED DESCRIPTION OF THE INVENTION

The peptides and corresponding nucleic acid compositions of the present invention are useful for stimulating an immune response to HPV by stimulating the production of CTL or HTL responses. The peptide epitopes, which are derived directly or indirectly from native HPV protein amino acid sequences, are able to bind to HLA molecules and stimulate an immune response to HPV. The complete sequence of the HPV proteins to be analyzed can be obtained from Genbank. Epitopes and analogs thereof can also be readily determined from sequence information that may subsequently be discovered for heretofore unknown variants of HPV, as will be clear from the disclosure provided below.

The epitopes of the invention have been identified in a number of ways, as will be discussed below. Also discussed in greater detail is that analog peptides have been derived and the binding activity for HLA molecules modulated by modifying specific amino acid residues to create peptide analogs exhibiting altered immunogenicity. Further, the present invention provides compositions and combinations of compositions that enable epitope-based vaccines that are capable of interacting with HLA molecules encoded by various genetic alleles to provide broader population coverage than prior vaccines.

III.A. Definitions

The invention can be better understood with reference to the following definitions, which are listed alphabetically:

A "computer" or "computer system" generally includes: a processor; at least one information storage/retrieval apparatus such as, for example, a hard drive, a disk drive or a tape drive; at least one input apparatus such as, for example, a keyboard, a mouse, a touch screen, or a microphone; and display structure. Additionally, the computer may include a communication channel in communication with a network. Such a computer may include more or less than what is listed above.

A "construct" as used herein generally denotes a composition that does not occur in nature. A construct can be produced by synthetic technologies, *e.g.*, recombinant DNA preparation and expression or chemical synthetic techniques for nucleic or amino acids. A construct can also be produced by the addition or affiliation of one material with another such that the result is not found in nature in that form.

"Cross-reactive binding" indicates that a peptide is bound by more than one HLA molecule; a synonym is degenerate binding.

A "cryptic epitope" elicits a response by immunization with an isolated peptide, but the response is not cross-reactive *in vitro* when intact whole protein which comprises the epitope is used as an antigen.

A "dominant epitope" is an epitope that induces an immune response upon immunization with a whole native antigen (see, e.g., Sercarz, *et al.*, *Annu. Rev. Immunol.* 11:729-766, 1993). Such a response is cross-reactive *in vitro* with an isolated peptide epitope.

With regard to a particular amino acid sequence, an "epitope" is a set of amino acid residues which is involved in recognition by a particular immunoglobulin, or in the context of T cells, those residues necessary for recognition by T cell receptor proteins and/or Major Histocompatibility Complex (MHC) receptors. In an immune system setting, *in vivo* or *in vitro*, an epitope is the collective features of a molecule, such as primary, secondary and tertiary peptide structure, and charge, that together form a site recognized by an immunoglobulin, T cell receptor or HLA molecule. Throughout this disclosure epitope and peptide are often used interchangeably. It is to be appreciated, however, that isolated or purified protein or peptide molecules larger than and comprising an epitope of the invention are still within the bounds of the invention.

"Human Leukocyte Antigen" or "HLA" is a human class I or class II Major Histocompatibility Complex (MHC) protein (see, e.g., Stites, *et al.*, *IMMUNOLOGY*, 8TH ED., Lange Publishing, Los Altos, CA (1994).

An "HLA supertype or family", as used herein, describes sets of HLA molecules grouped on the basis of shared peptide-binding specificities. HLA class I molecules that share somewhat similar binding affinity for peptides bearing certain amino acid motifs are grouped into HLA supertypes. The terms HLA superfamily, HLA supertype family, HLA family, and HLA xx-like molecules (where xx denotes a particular HLA type), are synonyms.

Throughout this disclosure, results are expressed in terms of "IC₅₀'s." IC₅₀ is the concentration of peptide in a binding assay at which 50% inhibition of binding of a reference peptide is observed. Given the conditions in which the assays are run (*i.e.*, limiting HLA proteins and labeled peptide concentrations), these values approximate K_D values. Assays for determining binding are described in detail, e.g., in PCT publications WO 94/20127 and WO 94/03205. It should be noted that IC₅₀ values can change, often

dramatically, if the assay conditions are varied, and depending on the particular reagents used (e.g., HLA preparation, etc.). For example, excessive concentrations of HLA molecules will increase the apparent measured IC_{50} of a given ligand.

Alternatively, binding is expressed relative to a reference peptide.

- 5 Although as a particular assay becomes more, or less, sensitive, the IC_{50} 's of the peptides tested may change somewhat, the binding relative to the reference peptide will not significantly change. For example, in an assay run under conditions such that the IC_{50} of the reference peptide increases 10-fold, the IC_{50} values of the test peptides will also shift approximately 10-fold. Therefore, to avoid ambiguities, the assessment of whether a
- 10 peptide is a good, intermediate, weak, or negative binder is generally based on its IC_{50} , relative to the IC_{50} of a standard peptide.

- Binding may also be determined using other assay systems including those using: live cells (e.g., Ceppellini *et al.*, *Nature* 339:392, 1989; Christnick *et al.*, *Nature* 352:67, 1991; Busch *et al.*, *Int. Immunol.* 2:443, 1990; Hill *et al.*, *J. Immunol.* 147:189,
- 15 1991; del Guercio *et al.*, *J. Immunol.* 154:685, 1995), cell free systems using detergent lysates (e.g., Cerundolo *et al.*, *J. Immunol.* 21:2069, 1991), immobilized purified MHC (e.g., Hill *et al.*, *J. Immunol.* 152, 2890, 1994; Marshall *et al.*, *J. Immunol.* 152:4946, 1994), ELISA systems (e.g., Reay *et al.*, *EMBO J.* 11:2829, 1992), surface plasmon resonance (e.g., Khilko *et al.*, *J. Biol. Chem.* 268:15425, 1993); high flux soluble phase
- 20 assays (Hammer *et al.*, *J. Exp. Med.* 180:2353, 1994), and measurement of class I MHC stabilization or assembly (e.g., Ljunggren *et al.*, *Nature* 346:476, 1990; Schumacher *et al.*, *Cell* 62:563, 1990; Townsend *et al.*, *Cell* 62:285, 1990; Parker *et al.*, *J. Immunol.* 149:1896, 1992).

- As used herein, "high affinity" with respect to HLA class I molecules is
- 25 defined as binding with an IC_{50} , or K_D value, of 50 nM or less; "intermediate affinity" is binding with an IC_{50} or K_D value of between about 50 and about 500 nM. "High affinity" with respect to binding to HLA class II molecules is defined as binding with an IC_{50} or K_D value of 100 nM or less; "intermediate affinity" is binding with an IC_{50} or K_D value of between about 100 and about 1000 nM.

- 30 The terms "identical" or percent "identity," in the context of two or more peptide sequences, refer to two or more sequences or subsequences that are the same or have a specified percentage of amino acid residues that are the same, when compared and aligned for maximum correspondence over a comparison window, as measured using a sequence comparison algorithm or by manual alignment and visual inspection.

An "immunogenic peptide" or "peptide epitope" is a peptide that comprises an allele-specific motif or supermotif such that the peptide will bind an HLA molecule and induce a CTL and/or HTL response. Thus, immunogenic peptides of the invention are capable of binding to an appropriate HLA molecule and thereafter inducing a cytotoxic T cell response, or a helper T cell response, to the antigen from which the immunogenic peptide is derived.

The phrases "isolated" or "biologically pure" refer to material which is substantially or essentially free from components which normally accompany the material as it is found in its native state. Thus, isolated peptides in accordance with the invention preferably do not contain materials normally associated with the peptides in their *in situ* environment.

"Link" or "join" refers to any method known in the art for functionally connecting peptides, including, without limitation, recombinant fusion, covalent bonding, disulfide bonding, ionic bonding, hydrogen bonding, and electrostatic bonding.

"Major Histocompatibility Complex" or "MHC" is a cluster of genes that plays a role in control of the cellular interactions responsible for physiologic immune responses. In humans, the MHC complex is also known as the HLA complex. For a detailed description of the MHC and HLA complexes, *see*, Paul, FUNDAMENTAL IMMUNOLOGY, 3RD ED., Raven Press, New York, 1993.

The term "motif" refers to the pattern of residues in a peptide of defined length, usually a peptide of from about 8 to about 13 amino acids for a class I HLA motif and from about 6 to about 25 amino acids for a class II HLA motif, which is recognized by a particular HLA molecule. Peptide motifs are typically different for each protein encoded by each human HLA allele and differ in the pattern of the primary and secondary anchor residues.

A "negative binding residue" or "deleterious residue" is an amino acid which, if present at certain positions (typically not primary anchor positions) in a peptide epitope, results in decreased binding affinity of the peptide for the peptide's corresponding HLA molecule.

A "non-native" sequence or "construct" refers to a sequence that is not found in nature, *i.e.*, is "non-naturally occurring". Such sequences include, *e.g.*, peptides that are lipidated or otherwise modified, and polyepitopic compositions that contain epitopes that are not contiguous in a native protein sequence.

The term "peptide" is used interchangeably with "oligopeptide" in the present specification to designate a series of residues, typically L-amino acids, connected one to the other, typically by peptide bonds between the α -amino and carboxyl groups of adjacent amino acids. The preferred CTL-inducing peptides of the invention are 13
 5 residues or less in length and usually consist of between about 8 and about 11 residues, preferably 9 or 10 residues. The preferred HTL-inducing oligopeptides are less than about 50 residues in length and usually consist of between about 6 and about 30 residues, more usually between about 12 and 25, and often between about 15 and 20 residues.

It is to be appreciated that protein or peptide molecules that comprise an
 10 epitope of the invention as well as additional amino acid(s) are within the bounds of the invention. In certain embodiments, there is a limitation on the length of a peptide of the invention which is not otherwise a construct as defined herein. An embodiment that is length-limited occurs when the protein/peptide comprising an epitope of the invention comprises a region (*i.e.*, a contiguous series of amino acids) having 100% identity with a
 15 native sequence. In order to avoid a recited definition of epitope from reading, *e.g.*, on whole natural molecules, the length of any region that has 100% identity with a native peptide sequence is limited. Thus, for a peptide comprising an epitope of the invention and a region with 100% identity with a native peptide sequence (and which is not otherwise a construct), the region with 100% identity to a native sequence generally has a
 20 length of: less than or equal to 600 amino acids, often less than or equal to 500 amino acids, often less than or equal to 400 amino acids, often less than or equal to 250 amino acids, often less than or equal to 100 amino acids, often less than or equal to 85 amino acids, often less than or equal to 75 amino acids, often less than or equal to 65 amino acids, and often less than or equal to 50 amino acids. In certain embodiments, an
 25 "epitope" of the invention which is not a construct is comprised by a peptide having a region with less than 51 amino acids that has 100% identity to a native peptide sequence, in any increment of (50, 49, 48, 47, 46, 45, 44, 43, 42, 41, 40, 39, 38, 37, 36, 35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5) down to 5 amino acids.

30 Certain peptide or protein sequences longer than 600 amino acids are within the scope of the invention. Such longer sequences are within the scope of the invention so long as they do not comprise any contiguous sequence of more than 600 amino acids that have 100% identity with a native peptide sequence, or if longer than 600 amino acids, they are a construct. For any peptide that has five contiguous residues or

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less that correspond to a native sequence, there is no limitation on the maximal length of that peptide in order to fall within the scope of the invention. It is presently preferred that a CTL epitope of the invention be less than 600 residues long in any increment down to eight amino acid residues.

5 “Pharmaceutically acceptable” refers to a non-toxic, inert, and/or physiologically compatible composition.

A “pharmaceutical excipient” comprises a material such as an adjuvant, a carrier, pH-adjusting and buffering agents, tonicity adjusting agents, wetting agents, preservative, and the like.

10 A “primary anchor residue” is an amino acid at a specific position along a peptide sequence which is understood to provide a contact point between the immunogenic peptide and the HLA molecule. One to three, usually two, primary anchor residues within a peptide of defined length generally defines a “motif” for an immunogenic peptide. These residues are understood to fit in close contact with peptide
15 binding grooves of an HLA molecule, with their side chains buried in specific pockets of the binding grooves themselves. In one embodiment, for example, the primary anchor residues are located at position 2 (from the amino terminal position) and at the carboxyl terminal position of a 9-residue peptide epitope in accordance with the invention. The primary anchor positions for each motif and supermotif are set forth in Table 1. For
20 example, analog peptides can be created by altering the presence or absence of particular residues in these primary anchor positions. Such analogs are used to modulate the binding affinity of a peptide comprising a particular motif or supermotif.

25 “Promiscuous recognition” is where a distinct peptide is recognized by the same T cell clone in the context of various HLA molecules. Promiscuous recognition or binding is synonymous with cross-reactive binding.

A “protective immune response” or “therapeutic immune response” refers to a CTL and/or an HTL response to an antigen derived from an infectious agent or a tumor antigen, which prevents or at least partially arrests disease symptoms or progression. The immune response may also include an antibody response which has
30 been facilitated by the stimulation of helper T cells.

The term “residue” refers to an amino acid or amino acid mimetic incorporated into an oligopeptide by an amide bond or amide bond mimetic.

A “secondary anchor residue” is an amino acid at a position other than a primary anchor position in a peptide which may influence peptide binding. A secondary

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anchor residue occurs at a significantly higher frequency amongst bound peptides than would be expected by random distribution of amino acids at one position. The secondary anchor residues are said to occur at "secondary anchor positions." A secondary anchor residue can be identified as a residue which is present at a higher frequency among high or intermediate affinity binding peptides, or a residue otherwise associated with high or intermediate affinity binding. For example, analog peptides can be created by altering the presence or absence of particular residues in these secondary anchor positions. Such analogs are used to finely modulate the binding affinity of a peptide comprising a particular motif or supermotif.

10 A "subdominant epitope" is an epitope which evokes little or no response upon immunization with whole antigens which comprise the epitope, but for which a response can be obtained by immunization with an isolated peptide, and this response (unlike the case of cryptic epitopes) is detected when whole protein is used to recall the response *in vitro* or *in vivo*.

15 A "supermotif" is a peptide binding specificity shared by HLA molecules encoded by two or more HLA alleles. Preferably, a supermotif-bearing peptide is recognized with high or intermediate affinity (as defined herein) by two or more HLA antigens.

20 "Synthetic peptide" refers to a peptide that is man-made using such methods as chemical synthesis or recombinant DNA technology.

As used herein, a "vaccine" is a composition that contains one or more peptides of the invention. There are numerous embodiments of vaccines in accordance with the invention, such as by a cocktail of one or more peptides; one or more epitopes of the invention comprised by a polyepitopic peptide; or nucleic acids that encode such peptides or polypeptides, *e.g.*, a minigene that encodes a polyepitopic peptide. The "one or more peptides" can include any whole unit integer from 1-150, *e.g.*, at least 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 or more peptides of the invention. The peptides or polypeptides can optionally be modified, such as by lipidation, addition of targeting or other sequences. HLA class I-binding peptides of the invention can be admixed with, or linked to, HLA class II-binding peptides, to facilitate activation of both cytotoxic T lymphocytes and helper T lymphocytes. Vaccines can also comprise peptide-pulsed antigen presenting cells, *e.g.*, dendritic cells.

The nomenclature used to describe peptide compounds follows the conventional practice wherein the amino group is presented to the left (the N-terminus) and the carboxyl group to the right (the C-terminus) of each amino acid residue. When amino acid residue positions are referred to in a peptide epitope they are numbered in an amino to carboxyl direction with position one being the position closest to the amino terminal end of the epitope, or the peptide or protein of which it may be a part. In the formulae representing selected specific embodiments of the present invention, the amino- and carboxyl-terminal groups, although not specifically shown, are in the form they would assume at physiologic pH values, unless otherwise specified. In the amino acid structure formulae, each residue is generally represented by standard three letter or single letter designations. The L-form of an amino acid residue is represented by a capital single letter or a capital first letter of a three-letter symbol, and the D-form for those amino acids having D-forms is represented by a lower case single letter or a lower case three letter symbol. Glycine has no asymmetric carbon atom and is simply referred to as "Gly" or G. Symbols for the amino acids are shown below.

Single Letter Symbol	Three Letter Symbol	Amino Acids
A	Ala	Alanine
C	Cys	Cysteine
D	Asp	Aspartic Acid
E	Glu	Glutamic Acid
F	Phe	Phenylalanine
G	Gly	Glycine
H	His	Histidine
I	Ile	Isoleucine
K	Lys	Lysine
L	Leu	Leucine
M	Met	Methionine
N	Asn	Asparagine
P	Pro	Proline
Q	Gln	Glutamine
R	Arg	Arginine
S	Ser	Serine
T	Thr	Threonine
V	Val	Valine
W	Trp	Tryptophan
Y	Tyr	Tyrosine

III.B. Stimulation of CTL and HTL responses

The mechanism by which T cells recognize antigens has been delineated during the past ten years. Based on our understanding of the immune system we have developed efficacious peptide epitope vaccine compositions that can induce a therapeutic or prophylactic immune response to HPV in a broad population. For an understanding of the value and efficacy of the claimed compositions, a brief review of immunology-related technology is provided.

A complex of an HLA molecule and a peptidic antigen acts as the ligand recognized by HLA-restricted T cells (Buus, S. *et al.*, *Cell* 47:1071, 1986; Babbitt, B. P. *et al.*, *Nature* 317:359, 1985; Townsend, A. and Bodmer, H., *Annu. Rev. Immunol.* 7:601,

- 1989; Germain, R. N., *Annu. Rev. Immunol.* 11:403, 1993). Through the study of single amino acid substituted antigen analogs and the sequencing of endogenously bound, naturally processed peptides, critical residues that correspond to motifs required for specific binding to HLA antigen molecules have been identified and are described herein
5. and are set forth in Tables I, II, and III (see also, e.g., Southwood, *et al.*, *J. Immunol.* 160:3363, 1998; Rammensee, *et al.*, *Immunogenetics* 41:178, 1995; Rammensee *et al.*, SYFPEITHI, access via web at : <http://134.2.96.221/scripts.hlaserver.dll/home.htm>; Sette, A. and Sidney, J. *Curr. Opin. Immunol.* 10:478, 1998; Engelhard, V. H., *Curr. Opin. Immunol.* 6:13, 1994; Sette, A. and Grey, H. M., *Curr. Opin. Immunol.* 4:79, 1992;
- 10 Sinigaglia, F. and Hammer, J. *Curr. Biol.* 6:52, 1994; Ruppert *et al.*, *Cell* 74:929-937, 1993; Kondo *et al.*, *J. Immunol.* 155:4307-4312, 1995; Sidney *et al.*, *J. Immunol.* 157:3480-3490, 1996; Sidney *et al.*, *Human Immunol.* 45:79-93, 1996; Sette, A. and Sidney, J. *Immunogenetics*, in press, 1999).

- Furthermore, x-ray crystallographic analysis of HLA-peptide complexes
- 15 has revealed pockets within the peptide binding cleft of HLA molecules which accommodate, in an allele-specific mode, residues borne by peptide ligands; these residues in turn determine the HLA binding capacity of the peptides in which they are present. (See, e.g., Madden, D.R. *Annu. Rev. Immunol.* 13:587, 1995; Smith, *et al.*, *Immunity* 4:203, 1996; Fremont *et al.*, *Immunity* 8:305, 1998; Stern *et al.*, *Structure*
- 20 2:245, 1994; Jones, E.Y. *Curr. Opin. Immunol.* 9:75, 1997; Brown, J. H. *et al.*, *Nature* 364:33, 1993; Guo, H. C. *et al.*, *Proc. Natl. Acad. Sci. USA* 90:8053, 1993; Guo, H. C. *et al.*, *Nature* 360:364, 1992; Silver, M. L. *et al.*, *Nature* 360:367, 1992; Matsumura, M. *et al.*, *Science* 257:927, 1992; Madden *et al.*, *Cell* 70:1035, 1992; Fremont, D. H. *et al.*, *Science* 257:919, 1992; Saper, M. A. , Bjorkman, P. J. and Wiley, D. C., *J. Mol. Biol.*
- 25 219:277, 1991.)

Accordingly, the definition of class I and class II allele-specific HLA binding motifs, or class I or class II supermotifs allows identification of regions within a protein that have the potential of binding particular HLA antigen(s).

- The present inventors have found that the correlation of binding affinity
- 30 with immunogenicity, which is disclosed herein, is an important factor to be considered when evaluating candidate peptides. Thus, by a combination of motif searches and HLA-peptide binding assays, candidates for epitope-based vaccines have been identified. After determining their binding affinity, additional confirmatory work can be performed to

select, amongst these vaccine candidates, epitopes with preferred characteristics in terms of population coverage, antigenicity, and immunogenicity.

Various strategies can be utilized to evaluate immunogenicity, including:

- 1) Evaluation of primary T cell cultures from normal individuals (*see, e.g.,*
5 Wentworth, P. A. *et al.*, *Mol. Immunol.* 32:603, 1995; Celis, E. *et al.*, *Proc. Natl. Acad. Sci. USA* 91:2105, 1994; Tsai, V. *et al.*, *J. Immunol.* 158:1796, 1997; Kawashima, I. *et al.*, *Human Immunol.* 59:1, 1998); This procedure involves the stimulation of peripheral blood lymphocytes (PBL) from normal subjects with a test peptide in the presence of antigen presenting cells *in vitro* over a period of several weeks. T cells specific for the
10 peptide become activated during this time and are detected using, *e.g.*, a lymphokine- or ^{51}Cr -release assay involving peptide sensitized target cells.
- 2) Immunization of HLA transgenic mice (*see, e.g.,* Wentworth, P. A. *et al.*, *J. Immunol.* 26:97, 1996; Wentworth, P. A. *et al.*, *Int. Immunol.* 8:651, 1996; Alexander, J. *et al.*, *J. Immunol.* 159:4753, 1997); In this method, peptides in incomplete
15 Freund's adjuvant are administered subcutaneously to HLA transgenic mice. Several weeks following immunization, splenocytes are removed and cultured *in vitro* in the presence of test peptide for approximately one week. Peptide-specific T cells are detected using, *e.g.*, a ^{51}Cr -release assay involving peptide sensitized target cells and target cells expressing endogenously generated antigen.
- 3) Demonstration of recall T cell responses from immune individuals who have effectively been vaccinated, recovered from infection, and/or from chronically infected patients (*see, e.g.,* Rehmann, B. *et al.*, *J. Exp. Med.* 181:1047, 1995; Doolan, D. L. *et al.*, *Immunity* 7:97, 1997; Bertoni, R. *et al.*, *J. Clin. Invest.* 100:503, 1997; Threlkeld, S. C. *et al.*, *J. Immunol.* 159:1648, 1997; Diepolder, H. M. *et al.*, *J. Virol.*
20 71:6011, 1997); In applying this strategy, recall responses are detected by culturing PBL from subjects that have been naturally exposed to the antigen, for instance through infection, and thus have generated an immune response "naturally", or from patients who were vaccinated against the infection. PBL from subjects are cultured *in vitro* for 1-2
25 weeks in the presence of test peptide plus antigen presenting cells (APC) to allow activation of "memory" T cells, as compared to "naive" T cells. At the end of the culture
30 period, T cell activity is detected using assays for T cell activity including ^{51}Cr release involving peptide-sensitized targets, T cell proliferation, or lymphokine release.

The following describes the peptide epitopes and corresponding nucleic acids of the invention.

III.C. Binding Affinity of Peptide Epitopes for HLA Molecules

5 As indicated herein, the large degree of HLA polymorphism is an important factor to be taken into account with the epitope-based approach to vaccine development. To address this factor, epitope selection encompassing identification of peptides capable of binding at high or intermediate affinity to multiple HLA molecules is preferably utilized, most preferably these epitopes bind at high or intermediate affinity to
10 two or more allele-specific HLA molecules.

CTL-inducing peptides of interest for vaccine compositions preferably include those that have an IC_{50} or binding affinity value for class I HLA molecules of 500 nM or better (*i.e.*, the value is ≤ 500 nM). HTL-inducing peptides preferably include those that have an IC_{50} or binding affinity value for class II HLA molecules of 1000 nM
15 or better, (*i.e.*, the value is $\leq 1,000$ nM). For example, peptide binding is assessed by testing the capacity of a candidate peptide to bind to a purified HLA molecule *in vitro*. Peptides exhibiting high or intermediate affinity are then considered for further analysis. Selected peptides are tested on other members of the supertype family. In preferred embodiments, peptides that exhibit cross-reactive binding are then used in cellular
20 screening analyses or vaccines.

As disclosed herein, higher HLA binding affinity is correlated with greater immunogenicity. Greater immunogenicity can be manifested in several different ways. Immunogenicity corresponds to whether an immune response is elicited at all, and to the vigor of any particular response, as well as to the extent of a population in which a
25 response is elicited. For example, a peptide might elicit an immune response in a diverse array of the population, yet in no instance produce a vigorous response. In accordance with these principles, close to 90% of high binding peptides have been found to be immunogenic, as contrasted with about 50% of the peptides which bind with intermediate affinity. Moreover, higher binding affinity peptides lead to more vigorous immunogenic
30 responses. As a result, less peptide is required to elicit a similar biological effect if a high affinity binding peptide is used. Thus, in preferred embodiments of the invention, high affinity binding epitopes are particularly useful.

The relationship between binding affinity for HLA class I molecules and immunogenicity of discrete peptide epitopes on bound antigens has been determined for the first time in the art by the present inventors. The correlation between binding affinity and immunogenicity was analyzed in two different experimental approaches (*see, e.g.,* 5 Sette, *et al.*, *J. Immunol.* 153:5586-5592, 1994). In the first approach, the immunogenicity of potential epitopes ranging in HLA binding affinity over a 10,000-fold range was analyzed in HLA-A*0201 transgenic mice. In the second approach, the antigenicity of approximately 100 different hepatitis B virus (HBV)-derived potential epitopes, all carrying A*0201 binding motifs, was assessed by using PBL from acute 10 hepatitis patients. Pursuant to these approaches, it was determined that an affinity threshold value of approximately 500 nM (preferably 50 nM or less) determines the capacity of a peptide epitope to elicit a CTL response. These data are true for class I binding affinity measurements for naturally processed peptides and for synthesized T cell epitopes. These data also indicate the important role of determinant selection in the 15 shaping of T cell responses (*see, e.g.,* Schaeffer *et al. Proc. Natl. Acad. Sci. USA* 86:4649-4653, 1989).

An affinity threshold associated with immunogenicity in the context of HLA class II DR molecules has also been delineated (*see, e.g.,* Southwood *et al. J. Immunology* 160:3363-3373, 1998, and co-pending U.S.S.N. 09/009,953 filed 1/21/98). 20 In order to define a biologically significant threshold of DR binding affinity, a database of the binding affinities of 32 DR-restricted epitopes for their restricting element (*i.e.*, the HLA molecule that binds the motif) was compiled. In approximately half of the cases (15 of 32 epitopes), DR restriction was associated with high binding affinities, *i.e.* binding affinity values of 100 nM or less. In the other half of the cases (16 of 32), DR restriction 25 was associated with intermediate affinity (binding affinity values in the 100-1000 nM range). In only one of 32 cases was DR restriction associated with an IC₅₀ of 1000 nM or greater. Thus, 1000 nM can be defined as an affinity threshold associated with immunogenicity in the context of DR molecules.

In the case of tumor-associated antigens, many CTL peptide epitopes that 30 have been shown to induce CTL that lyse peptide-pulsed target cells and tumor cell targets endogenously expressing the epitope exhibit binding affinity or IC₅₀ values of 200 nM or less. In a study that evaluated the association of binding affinity and immunogenicity of a small set of such TAA epitopes, 100% (10/10) of the high binders, *i.e.*, peptide epitopes binding at an affinity of 50 nM or less, were immunogenic and 80%

(8/10) of them elicited CTLs that specifically recognized tumor cells. In the 51 to 200 nM range, very similar figures were obtained. With respect to analog peptides, CTL inductions positive for wildtype peptide and tumor cells were noted for 86% (6/7) and 71% (5/7) of the peptides, respectively. In the 201-500 nM range, most peptides (4/5 wildtype) were positive for induction of CTL recognizing wildtype peptide, but tumor recognition was not detected.

The binding affinity of peptides for HLA molecules can be determined as described in Example 1, below.

10 III.D. Peptide Epitope Binding Motifs and Supermotifs

Through the study of single amino acid substituted antigen analogs and the sequencing of endogenously bound, naturally processed peptides, critical residues required for allele-specific binding to HLA molecules have been identified. The presence of these residues correlates with binding affinity for HLA molecules. The identification of motifs and/or supermotifs that correlate with high and intermediate affinity binding is an important issue with respect to the identification of immunogenic peptide epitopes for the inclusion in a vaccine. Kast *et al.* (*J. Immunol.* 152:3904-3912, 1994) have shown that motif-bearing peptides account for 90% of the epitopes that bind to allele-specific HLA class I molecules. In this study all possible peptides of 9 amino acids in length and overlapping by eight amino acids (240 peptides), which cover the entire sequence of the E6 and E7 proteins of human papillomavirus type 16, were evaluated for binding to five allele-specific HLA molecules that are expressed at high frequency among different ethnic groups. This unbiased set of peptides allowed an evaluation of the predictive value of HLA class I motifs. From the set of 240 peptides, 22 peptides were identified that bound to an allele-specific HLA molecule with high or intermediate affinity. Of these 22 peptides, 20 (*i.e.* 91%) were motif-bearing. Thus, this study demonstrates the value of motifs for the identification of peptide epitopes for inclusion in a vaccine: application of motif-based identification techniques will identify about 90% of the potential epitopes in a target antigen protein sequence.

30 Such peptide epitopes are identified in the Tables described below.

Peptides of the present invention may also comprise epitopes that bind to MHC class II DR molecules. A greater degree of heterogeneity in both size and binding frame position of the motif, relative to the N and C termini of the peptide, exists for class II peptide ligands. This increased heterogeneity of HLA class II peptide ligands is due to

the structure of the binding groove of the HLA class II molecule which, unlike its class I counterpart, is open at both ends. Crystallographic analysis of HLA class II DRB*0101-peptide complexes showed that the major energy of binding is contributed by peptide residues complexed with complementary pockets on the DRB*0101 molecules. An
 5 important anchor residue engages the deepest hydrophobic pocket (*see, e.g.*, Madden, D.R. *Ann. Rev. Immunol.* 13:587, 1995) and is referred to as position 1 (P1). P1 may represent the N-terminal residue of a class II binding peptide epitope, but more typically is flanked towards the N-terminus by one or more residues. Other studies have also pointed to an important role for the peptide residue in the 6th position towards the C-
 10 terminus, relative to P1, for binding to various DR molecules.

In the past few years evidence has accumulated to demonstrate that a large fraction of HLA class I and class II molecules can be classified into a relatively few supertypes, each characterized by largely overlapping peptide binding repertoires, and consensus structures of the main peptide binding pockets. Thus, peptides of the present
 15 invention are identified by any one of several HLA-specific amino acid motifs (*see, e.g.*, Tables I-III), or if the presence of the motif corresponds to the ability to bind several allele-specific HLA antigens, a supermotif. The HLA molecules that bind to peptides that possess a particular amino acid supermotif are collectively referred to as an HLA “supertype.”

20 The peptide motifs and supermotifs described below, and summarized in Tables I-III, provide guidance for the identification and use of peptide epitopes in accordance with the invention:

Examples of peptide epitopes bearing a respective supermotif or motif are included in Tables as designated in the description of each motif or supermotif below.
 25 The Tables include a binding affinity ratio listing for some of the peptide epitopes. The ratio may be converted to IC₅₀ by using the following formula: IC₅₀ of the standard peptide/ratio = IC₅₀ of the test peptide (*i.e.*, the peptide epitope). The IC₅₀ values of standard peptides used to determine binding affinities for Class I peptides are shown in Table IV. The IC₅₀ values of standard peptides used to determine binding affinities for
 30 Class II peptides are shown in Table V. For example, where an HLA-A2.1 motif-bearing peptide shows a relative binding ratio of 0.01 for HLA-A*0201, the IC₅₀ value is 500 nM, and where an HLA-A2.1 motif-bearing peptide shows a relative binding ratio of 0.1 for HLA-A*0201, the IC₅₀ value is 50 nM.

The peptides used as standards for the binding assays described herein are examples of standards; alternative standard peptides can also be used when performing binding studies.

To obtain the peptide epitope sequences listed in each Table, protein sequence data for HPV types 16, 18, 31, 33, 45, and 56 were evaluated for the presence of the designated supermotif or motif. Seven HPV structural and regulatory proteins, E1, E2, E5, E6, E7, L1 and L2 were included in the analysis. Peptide epitopes can additionally be evaluated on the basis of their conservancy (*i.e.*, the amount of variance) among the available protein sequences for each HPV antigen. The “number of amino acids” in the Tables indicates the number of residues in the epitope sequence.

HLA Class I Motifs Indicative of CTL Inducing Peptide Epitopes:

The primary anchor residues of the HLA class I peptide epitope supermotifs and motifs delineated below are summarized in Table I. The HLA class I motifs set out in Table I(a) are those most particularly relevant to the invention claimed here. Primary and secondary anchor positions are summarized in Table II. Allele-specific HLA molecules that comprise HLA class I supertype families are listed in Table VI. In some cases, peptide epitopes may be listed in both a motif and a supermotif Table. The relationship of a particular motif and respective supermotif is indicated in the description of the individual motifs.

III.D.1. HLA-A1 supermotif

The HLA-A1 supermotif is characterized by the presence in peptide ligands of a small (T or S) or hydrophobic (L, I, V, or M) primary anchor residue in position 2, and an aromatic (Y, F, or W) primary anchor residue at the C-terminal position of the epitope. The corresponding family of HLA molecules that bind to the A1 supermotif (*i.e.*, the HLA-A1 supertype) is comprised of at least A*0101, A*2601, A*2602, A*2501, and A*3201 (*see, e.g.*, DiBrino, M. *et al.*, *J. Immunol.* 151:5930, 1993; DiBrino, M. *et al.*, *J. Immunol.* 152:620, 1994; Kondo, A. *et al.*, *Immunogenetics* 45:249, 1997). Other allele-specific HLA molecules predicted to be members of the A1 superfamily are shown in Table VI. Peptides binding to each of the individual HLA proteins can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the A1 supermotif are set forth in Table VII.

III.D.2. HLA-A2 supermotif

5 Primary anchor specificities for allele-specific HLA-A2.1 molecules (*see, e.g., Falk et al., Nature* 351:290-296, 1991; Hunt *et al., Science* 255:1261-1263, 1992; Parker *et al., J. Immunol.* 149:3580-3587, 1992; Ruppert *et al., Cell* 74:929-937, 1993) and cross-reactive binding among HLA-A2 and -A28 molecules have been described. (See, *e.g., Fruci et al., Human Immunol.* 38:187-192, 1993; Tanigaki *et al., Human*
10 *Immunol.* 39:155-162, 1994; Del Guercio *et al., J. Immunol.* 154:685-693, 1995; Kast *et al., J. Immunol.* 152:3904-3912, 1994 for reviews of relevant data.) These primary anchor residues define the HLA-A2 supermotif; which presence in peptide ligands corresponds to the ability to bind several different HLA-A2 and -A28 molecules. The HLA-A2 supermotif comprises peptide ligands with L, I, V, M, A, T, or Q as a primary
15 anchor residue at position 2 and L, I, V, M, A, or T as a primary anchor residue at the C-terminal position of the epitope.

The corresponding family of HLA molecules (*i.e., the HLA-A2 supertype that binds these peptides*) is comprised of at least: A*0201, A*0202, A*0203, A*0204, A*0205, A*0206, A*0207, A*0209, A*0214, A*6802, and A*6901. Other allele-
20 specific HLA molecules predicted to be members of the A2 superfamily are shown in Table VI. As explained in detail below, binding to each of the individual allele-specific HLA molecules can be modulated by substitutions at the primary anchor and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

25 Representative peptide epitopes that comprise an A2 supermotif are set forth in Table VIII. The motifs comprising the primary anchor residues V, A, T, or Q at position 2 and L, I, V, A, or T at the C-terminal position are those most particularly relevant to the invention claimed herein.

30 III.D.3. HLA-A3 supermotif

The HLA-A3 supermotif is characterized by the presence in peptide ligands of A, L, I, V, M, S, or, T as a primary anchor at position 2, and a positively charged residue, R or K, at the C-terminal position of the epitope, *e.g., in position 9 of 9-mers (see, e.g., Sidney et al., Hum. Immunol.* 45:79, 1996). Exemplary members of the

corresponding family of HLA molecules (the HLA-A3 supertype) that bind the A3 supermotif include at least A*0301, A*1101, A*3101, A*3301, and A*6801. Other allele-specific HLA molecules predicted to be members of the A3 supertype are shown in Table VI. As explained in detail below, peptide binding to each of the individual allele-specific HLA proteins can be modulated by substitutions of amino acids at the primary and/or secondary anchor positions of the peptide, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the A3 supermotif are set forth in Table IX.

III.D.4. HLA-A24 supermotif

The HLA-A24 supermotif is characterized by the presence in peptide ligands of an aromatic (F, W, or Y) or hydrophobic aliphatic (L, I, V, M, or T) residue as a primary anchor in position 2, and Y, F, W, L, I, or M as primary anchor at the C-terminal position of the epitope (*see, e.g.,* Sette and Sidney, *Immunogenetics*, in press, 1999). The corresponding family of HLA molecules that bind to the A24 supermotif (*i.e.,* the A24 supertype) includes at least A*2402, A*3001, and A*2301. Other allele-specific HLA molecules predicted to be members of the A24 supertype are shown in Table VI. Peptide binding to each of the allele-specific HLA molecules can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the A24 supermotif are set forth in Table X.

III.D.5. HLA-B7 supermotif

The HLA-B7 supermotif is characterized by peptides bearing proline in position 2 as a primary anchor, and a hydrophobic or aliphatic amino acid (L, I, V, M, A, F, W, or Y) as the primary anchor at the C-terminal position of the epitope. The corresponding family of HLA molecules that bind the B7 supermotif (*i.e.,* the HLA-B7 supertype) is comprised of at least twenty six HLA-B proteins including: B*0702, B*0703, B*0704, B*0705, B*1508, B*3501, B*3502, B*3503, B*3504, B*3505, B*3506, B*3507, B*3508, B*5101, B*5102, B*5103, B*5104, B*5105, B*5301, B*5401, B*5501, B*5502, B*5601, B*5602, B*6701, and B*7801 (*see, e.g.,* Sidney, *et al., J. Immunol.* 154:247, 1995; Barber, *et al., Curr. Biol.* 5:179, 1995; Hill, *et al., Nature*

360:434, 1992; Rammensee, *et al.*, *Immunogenetics* 41:178, 1995 for reviews of relevant data). Other allele-specific HLA molecules predicted to be members of the B7 supertype are shown in Table VI. As explained in detail below, peptide binding to each of the individual allele-specific HLA proteins can be modulated by substitutions at the primary and/or secondary anchor positions of the peptide, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the B7 supermotif are set forth in Table XI.

10 **III.D.6. HLA-B27 supermotif**

The HLA-B27 supermotif is characterized by the presence in peptide ligands of a positively charged (R, H, or K) residue as a primary anchor at position 2, and a hydrophobic (F, Y, L, W, M, I, A, or V) residue as a primary anchor at the C-terminal position of the epitope (*see, e.g.*, Sidney and Sette, *Immunogenetics*, in press, 1999).

15 Exemplary members of the corresponding family of HLA molecules that bind to the B27 supermotif (*i.e.*, the B27 supertype) include at least B*1401, B*1402, B*1509, B*2702, B*2703, B*2704, B*2705, B*2706, B*3801, B*3901, B*3902, and B*7301. Other allele-specific HLA molecules predicted to be members of the B27 supertype are shown in Table VI. Peptide binding to each of the allele-specific HLA molecules can be
20 modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the B27 supermotif are set forth in Table XII.

25 **III.D.7. HLA-B44 supermotif**

The HLA-B44 supermotif is characterized by the presence in peptide ligands of negatively charged (D or E) residues as a primary anchor in position 2, and hydrophobic residues (F, W, Y, L, I, M, V, or A) as a primary anchor at the C-terminal position of the epitope (*see, e.g.*, Sidney et al., *Immunol. Today* 17:261, 1996).

30 Exemplary members of the corresponding family of HLA molecules that bind to the B44 supermotif (*i.e.*, the B44 supertype) include at least: B*1801, B*1802, B*3701, B*4001, B*4002, B*4006, B*4402, B*4403, and B*4006. Peptide binding to each of the allele-specific HLA molecules can be modulated by substitutions at primary and/or secondary anchor positions; preferably choosing respective residues specified for the supermotif.

III.D.8. HLA-B58 supermotif

The HLA-B58 supermotif is characterized by the presence in peptide ligands of a small aliphatic residue (A, S, or T) as a primary anchor residue at position 2, and an aromatic or hydrophobic residue (F, W, Y, L, I, V, M, or A) as a primary anchor residue at the C-terminal position of the epitope (*see, e.g.*, Sidney and Sette, *Immunogenetics*, in press, 1999 for reviews of relevant data). Exemplary members of the corresponding family of HLA molecules that bind to the B58 supermotif (*i.e.*, the B58 supertype) include at least: B*1516, B*1517, B*5701, B*5702, and B*5801. Other allele-specific HLA molecules predicted to be members of the B58 supertype are shown in Table VI. Peptide binding to each of the allele-specific HLA molecules can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the B58 supermotif are set forth in Table XIII.

III.D.9. HLA-B62 supermotif

The HLA-B62 supermotif is characterized by the presence in peptide ligands of the polar aliphatic residue Q or a hydrophobic aliphatic residue (L, V, M, I, or P) as a primary anchor in position 2, and a hydrophobic residue (F, W, Y, M, I, V, L, or A) as a primary anchor at the C-terminal position of the epitope (*see, e.g.*, Sidney and Sette, *Immunogenetics*, in press, 1999). Exemplary members of the corresponding family of HLA molecules that bind to the B62 supermotif (*i.e.*, the B62 supertype) include at least: B*1501, B*1502, B*1513, and B5201. Other allele-specific HLA molecules predicted to be members of the B62 supertype are shown in Table VI. Peptide binding to each of the allele-specific HLA molecules can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

Representative peptide epitopes that comprise the B62 supermotif are set forth in Table XIV.

III.D.10. HLA-A1 motif

The HLA-A1 motif is characterized by the presence in peptide ligands of T, S, or M as a primary anchor residue at position 2 and the presence of Y as a primary

anchor residue at the C-terminal position of the epitope. An alternative allele-specific A1 motif is characterized by a primary anchor residue at position 3 rather than position 2. This motif is characterized by the presence of D, E, A, or S as a primary anchor residue in position 3, and a Y as a primary anchor residue at the C-terminal position of the epitope (see, e.g., DiBrino *et al.*, *J. Immunol.*, 152:620, 1994; Kondo *et al.*, *Immunogenetics* 45:249, 1997; and Kubo *et al.*, *J. Immunol.* 152:3913, 1994 for reviews of relevant data). Peptide binding to HLA A1 can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the motif.

Representative peptide epitopes that comprise either A1 motif are set forth in Table XV. Those epitopes comprising T, S, or M at position 2 and Y at the C-terminal position are also included in the listing of HLA-A1 supermotif-bearing peptides listed in Table VII, as these residues are a subset of the A1 supermotif primary anchors.

III.D.11. HLA-A*0201 motif

An HLA-A2*0201 motif was determined to be characterized by the presence in peptide ligands of L or M as a primary anchor residue in position 2, and L or V as a primary anchor residue at the C-terminal position of a 9-residue peptide (see, e.g., Falk *et al.*, *Nature* 351:290-296, 1991) and was further found to comprise an I at position 2 and I or A at the C-terminal position of a nine amino acid peptide (see, e.g., Hunt *et al.*, *Science* 255:1261-1263, March 6, 1992; Parker *et al.*, *J. Immunol.* 149:3580-3587, 1992). The A*0201 allele-specific motif has also been defined by the present inventors to additionally comprise V, A, T, or Q as a primary anchor residue at position 2, and M or T as a primary anchor residue at the C-terminal position of the epitope (see, e.g., Kast *et al.*, *J. Immunol.* 152:3904-3912, 1994). Thus, the HLA-A*0201 motif comprises peptide ligands with L, I, V, M, A, T, or Q as primary anchor residues at position 2 and L, I, V, M, A, or T as a primary anchor residue at the C-terminal position of the epitope. The preferred and tolerated residues that characterize the primary anchor positions of the HLA-A*0201 motif are identical to the residues describing the A2 supermotif. (For reviews of relevant data, see, e.g., Del Guercio *et al.*, *J. Immunol.* 154:685-693, 1995; Ruppert *et al.*, *Cell* 74:929-937, 1993; Sidney *et al.*, *Immunol. Today* 17:261-266, 1996; Sette and Sidney, *Curr. Opin. in Immunol.* 10:478-482, 1998). Secondary anchor residues that characterize the A*0201 motif have additionally been defined (see, e.g., Ruppert *et al.*, *Cell* 74:929-937, 1993). These are shown in Table II. Peptide binding to

HLA-A*0201 molecules can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the motif.

Representative peptide epitopes that comprise an A*0201 motif are set forth in Table VIII. The A*0201 motifs comprising the primary anchor residues V, A, T, or Q at position 2 and L, I, V, A, or T at the C-terminal position are those most particularly relevant to the invention claimed herein.

III.D.12. HLA-A3 motif

The HLA-A3 motif is characterized by the presence in peptide ligands of L, M, V, I, S, A, T, F, C, G, or D as a primary anchor residue at position 2, and the presence of K, Y, R, H, F, or A as a primary anchor residue at the C-terminal position of the epitope (*see, e.g., DiBrino et al., Proc. Natl. Acad. Sci USA 90:1508, 1993; and Kubo et al., J. Immunol. 152:3913-3924, 1994*). Peptide binding to HLA-A3 can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the motif.

Representative peptide epitopes that comprise the A3 motif are set forth in Table XVI. Those epitopes that also comprise the A3 supermotif are also listed in Table IX. The A3 supermotif primary anchor residues comprise a subset of the A3- and A11-allele specific motif primary anchor residues.

III.D.13. HLA-A11 motif

The HLA-A11 motif is characterized by the presence in peptide ligands of V, T, M, L, I, S, A, G, N, C, D, or F as a primary anchor residue in position 2, and K, R, Y, or H as a primary anchor residue at the C-terminal position of the epitope (*see, e.g., Zhang et al., Proc. Natl. Acad. Sci USA 90:2217-2221, 1993; and Kubo et al., J. Immunol. 152:3913-3924, 1994*). Peptide binding to HLA-A11 can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the motif.

Representative peptide epitopes that comprise the A11 motif are set forth in Table XVII; peptide epitopes comprising the A3 allele-specific motif are also present in this Table because of the extensive overlap between the A3 and A11 motif primary anchor specificities. Further, those peptide epitopes that comprise the A3 supermotif are also listed in Table IX.

III.D.14. HLA-A24 motif

The HLA-A24 motif is characterized by the presence in peptide ligands of Y, F, W, or M as a primary anchor residue in position 2, and F, L, I, or W as a primary anchor residue at the C-terminal position of the epitope (*see, e.g., Kondo et al., J.*

5 *Immunol.* 155:4307-4312, 1995; and Kubo *et al., J. Immunol.* 152:3913-3924, 1994).

Peptide binding to HLA-A24 molecules can be modulated by substitutions at primary and/or secondary anchor positions; preferably choosing respective residues specified for the motif.

10 Representative peptide epitopes that comprise the A24 motif are set forth in Table XVIII. These epitopes are also listed in Table X, which sets forth HLA-A24-supermotif-bearing peptides, as the primary anchor residues characterizing the A24 allele-specific motif comprise a subset of the A24 supermotif primary anchor residues.

Motifs Indicative of Class II HTL Inducing Peptide Epitopes

15 The primary and secondary anchor residues of the HLA class II peptide epitope supermotifs and motifs delineated below are summarized in Table III.

III.D.15. HLA DR-1-4-7 supermotif

20 Motifs have also been identified for peptides that bind to three common HLA class II allele-specific HLA molecules: HLA DRB1*0401, DRB1*0101, and DRB1*0701 (*see, e.g., the review by Southwood et al. J. Immunology* 160:3363-3373,1998). Collectively, the common residues from these motifs delineate the HLA DR-1-4-7 supermotif. Peptides that bind to these DR molecules carry a supermotif characterized by a large aromatic or hydrophobic residue (Y, F, W, L, I, V, or M) as a

25 primary anchor residue in position 1, and a small, non-charged residue (S, T, C, A, P, V, I, L, or M) as a primary anchor residue in position 6 of a 9-mer core region. Allele-specific secondary effects and secondary anchors for each of these HLA types have also been identified (Southwood *et al., supra*). These are set forth in Table III. Peptide binding to HLA- DRB1*0401, DRB1*0101, and/or DRB1*0701 can be modulated by

30 substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the supermotif.

Representative 9-mer epitopes comprising the DR-1-4-7 supermotif, wherein position 1 of the supermotif is at position 1 of the nine-residue core, are set forth in Table XIX. Respective exemplary peptide epitopes of 15 amino acid residues in

length, each of which comprise a conserved nine residue core, are also shown in the Table.

III.D.16. HLA DR3 motifs

Two alternative motifs (*i.e.*, submotifs) characterize peptide epitopes that bind to HLA-DR3 molecules (*sée, e.g.*, Geluk *et al.*, *J. Immunol.* 152:5742, 1994). In the first motif (submotif DR3A) a large, hydrophobic residue (L, I, V, M, F, or Y) is present in anchor position 1 of a 9-mer core, and D is present as an anchor at position 4, towards the carboxyl terminus of the epitope. As in other class II motifs, core position 1 may or may not occupy the peptide N-terminal position.

The alternative DR3 submotif provides for lack of the large, hydrophobic residue at anchor position 1, and/or lack of the negatively charged or amide-like anchor residue at position 4, by the presence of a positive charge at position 6 towards the carboxyl terminus of the epitope. Thus, for the alternative allele-specific DR3 motif (submotif DR3B): L, I, V, M, F, Y, A, or Y is present at anchor position 1; D, N, Q, E, S, or T is present at anchor position 4; and K, R, or H is present at anchor position 6. Peptide binding to HLA-DR3 can be modulated by substitutions at primary and/or secondary anchor positions, preferably choosing respective residues specified for the motif.

Representative 9-mer epitopes corresponding to a nine residue sequence comprising the DR3a and DR3b submotifs (wherein position 1 of the motif is at position 1 of the nine residue core) are set forth in Table XXa and b. Respective exemplary peptide epitopes of 15 amino acid residues in length, each of which comprise a conserved nine residue core, are also shown in Table XX.

Each of the HLA class I or class II epitopes set out in the Tables herein are deemed singly to be an inventive aspect of this application. Further, it is also an inventive aspect of this application that each epitope may be used in combination with any other epitope.

III.E. Enhancing Population Coverage of the Vaccine

Vaccines that have broad population coverage are preferred because they are more commercially viable and generally applicable to the most people. Broad population coverage can be obtained using the peptides of the invention (and nucleic acid compositions that encode such peptides) through selecting peptide epitopes that bind to

HLA alleles which, when considered in total, are present in most of the population. Table XXI lists the overall frequencies of the HLA class I supertypes in various ethnicities (Table XXIa) and the combined population coverage achieved by the A2-, A3-, and B7-supertypes (Table XXIb). The A2-, A3-, and B7 supertypes are each present on the average of over 40% in each of these five major ethnic groups. Coverage in excess of 80% is achieved with a combination of these supermotifs. These results suggest that effective and non-ethnically biased population coverage is achieved upon use of a limited number of cross-reactive peptides. Although the population coverage reached with these three main peptide specificities is high, coverage can be expanded to reach 95% population coverage and above, and more easily achieve truly multispecific responses upon use of additional supermotif or allele-specific motif bearing peptides.

The B44-, A1-, and A24-supertypes are each present, on average, in a range from 25% to 40% in these major ethnic populations (Table XXIa). While less prevalent overall, the B27-, B58-, and B62 supertypes are each present with a frequency >25% in at least one major ethnic group (Table XXIa). Table XXIb summarizes the estimated prevalence of combinations of HLA supertypes that have been identified in five major ethnic groups. The incremental coverage obtained by the inclusion of A1-, A24-, and B44-supertypes to the A2, A3, and B7 coverage and coverage obtained with all of the supertypes described herein, is shown.

The data presented herein, together with the previous definition of the A2-, A3-, and B7-supertypes, indicates that all antigens, with the possible exception of A29, B8, and B46, can be classified into a total of nine HLA supertypes. By including epitopes from the six most frequent supertypes, an average population coverage of 99% is obtained for five major ethnic groups.

III.F. Immune Response-Stimulating Peptide Analogs

In general, CTL and HTL responses to whole antigens are not directed against all possible epitopes. Rather, they are restricted to a few "immunodominant" determinants (Zinkernagel, *et al.*, *Adv. Immunol.* 27:5159, 1979; Bennink, *et al.*, *J. Exp. Med.* 168:1935-1939, 1988; Rawle, *et al.*, *J. Immunol.* 146:3977-3984, 1991). It has been recognized that immunodominance (Benacerraf, *et al.*, *Science* 175:273-279, 1972) could be explained by either the ability of a given epitope to selectively bind a particular HLA protein (determinant selection theory) (Vitiello, *et al.*, *J. Immunol.* 131:1635, 1983); Rosenthal, *et al.*, *Nature* 267:156-158, 1977), or to be selectively recognized by the

existing TCR (T cell receptor) specificities (repertoire theory) (Klein, J., IMMUNOLOGY, THE SCIENCE OF SELF/NONSELF DISCRIMINATION, John Wiley & Sons, New York, pp. 270-310, 1982). It has been demonstrated that additional factors, mostly linked to processing events, can also play a key role in dictating, beyond strict immunogenicity, which of the many potential determinants will be presented as immunodominant (Sercarz, *et al.*, *Annu. Rev. Immunol.* 11:729-766, 1993).

The concept of dominance and subdominance is relevant to immunotherapy of both infectious diseases and cancer. For example, in the course of chronic viral disease, recruitment of subdominant epitopes can be important for successful clearance of the infection, especially if dominant CTL or HTL specificities have been inactivated by functional tolerance, suppression, mutation of viruses and other mechanisms (Franco, *et al.*, *Curr. Opin. Immunol.* 7:524-531, 1995). In the case of cancer and tumor antigens, CTLs recognizing at least some of the highest binding affinity peptides might be functionally inactivated. Lower binding affinity peptides are preferentially recognized at these times, and may therefore be preferred in therapeutic or prophylactic anti-cancer vaccines.

In particular, it has been noted that a significant number of epitopes derived from known non-viral tumor associated antigens (TAA) bind HLA class I with intermediate affinity (IC_{50} in the 50-500 nM range). For example, it has been found that 8 of 15 known TAA peptides recognized by tumor infiltrating lymphocytes (TIL) or CTL bound in the 50-500 nM range. (These data are in contrast with estimates that 90% of known viral antigens were bound by HLA class I molecules with IC_{50} of 50 nM or less, while only approximately 10% bound in the 50-500 nM range (Sette, *et al.*, *J. Immunol.*, 153:558-5592, 1994). In the cancer setting this phenomenon is probably due to elimination or functional inhibition of the CTL recognizing several of the highest binding peptides, presumably because of T cell tolerization events.

Without intending to be bound by theory, it is believed that because T cells to dominant epitopes may have been clonally deleted, selecting subdominant epitopes may allow existing T cells to be recruited, which will then lead to a therapeutic or prophylactic response. However, the binding of HLA molecules to subdominant epitopes is often less vigorous than to dominant ones. Accordingly, there is a need to be able to modulate the binding affinity of particular immunogenic epitopes for one or more HLA molecules, and thereby to modulate the immune response elicited by the peptide, for example to prepare analog peptides which elicit a more vigorous response. This ability

would greatly enhance the usefulness of peptide epitope-based vaccines and therapeutic agents.

Although peptides with suitable cross-reactivity among all alleles of a superfamily are identified by the screening procedures described above, cross-reactivity is not always as complete as possible, and in certain cases procedures to increase cross-reactivity of peptides can be useful; moreover, such procedures can also be used to modify other properties of the peptides such as binding affinity or peptide stability. Having established the general rules that govern cross-reactivity of peptides for HLA alleles within a given motif or supermotif, modification (*i.e.*, analoging) of the structure of peptides of particular interest in order to achieve broader (or otherwise modified) HLA binding capacity can be performed. More specifically, peptides which exhibit the broadest cross-reactivity patterns, can be produced in accordance with the teachings herein. The present concepts related to analog generation are set forth in greater detail in co-pending U.S.S.N. 09/226,775 filed 1/6/99.

In brief, the strategy employed utilizes the motifs or supermotifs which correlate with binding to certain HLA molecules. The motifs or supermotifs are defined by having primary anchors, and in many cases secondary anchors. Analog peptides can be created by substituting amino acid residues at primary anchor, secondary anchor, or at primary and secondary anchor positions. Generally, analogs are made for peptides that already bear a motif or supermotif. Preferred secondary anchor residues of supermotifs and motifs that have been defined for HLA class I and class II binding peptides are shown in Tables II and III, respectively.

For a number of the motifs or supermotifs in accordance with the invention, residues are defined which are deleterious to binding to allele-specific HLA molecules or members of HLA supertypes that bind the respective motif or supermotif (Tables II and III). Accordingly, removal of such residues that are detrimental to binding can be performed in accordance with the present invention. For example, in the case of the A3 supertype, when all peptides that have such deleterious residues are removed from the population of peptides used in the analysis, the incidence of cross-reactivity increased from 22% to 37% (*see, e.g.*, Sidney, J. *et al.*, *Hu. Immunol.* 45:79, 1996). Thus, one strategy to improve the cross-reactivity of peptides within a given supermotif is simply to delete one or more of the deleterious residues present within a peptide and substitute a small "neutral" residue such as Ala (that may not influence T cell recognition of the peptide). An enhanced likelihood of cross-reactivity is expected if, together with

elimination of detrimental residues within a peptide, “preferred” residues associated with high affinity binding to an allele-specific HLA molecule or to multiple HLA molecules within a superfamily are inserted.

To ensure that an analog peptide, when used as a vaccine, actually elicits a CTL response to the native epitope *in vivo* (or, in the case of class II epitopes, elicits helper T cells that cross-react with the wild type peptides), the analog peptide may be used to immunize T cells *in vitro* from individuals of the appropriate HLA allele. Thereafter, the immunized cells' capacity to induce lysis of wild type peptide sensitized target cells is evaluated. It will be desirable to use as antigen presenting cells, cells that have been either infected, or transfected with the appropriate genes, or, in the case of class II epitopes only, cells that have been pulsed with whole protein antigens, to establish whether endogenously produced antigen is also recognized by the relevant T cells.

Another embodiment of the invention is to create analogs of weak binding peptides, to thereby ensure adequate numbers of cross-reactive cellular binders. Class I binding peptides exhibiting binding affinities of 500-5000 nM, and carrying an acceptable but suboptimal primary anchor residue at one or both positions can be “fixed” by substituting preferred anchor residues in accordance with the respective supertype. The analog peptides can then be tested for crossbinding activity.

Another embodiment for generating effective peptide analogs involves the substitution of residues that have an adverse impact on peptide stability or solubility in, *e.g.*, a liquid environment. This substitution may occur at any position of the peptide epitope. For example, a cysteine (C) can be substituted out in favor of α -amino butyric acid. Due to its chemical nature, cysteine has the propensity to form disulfide bridges and sufficiently alter the peptide structurally so as to reduce binding capacity. Substituting α -amino butyric acid for C not only alleviates this problem, but actually improves binding and crossbinding capability in certain instances (*see, e.g.*, the review by Sette *et al.*, In: Persistent Viral Infections, Eds. R. Ahmed and I. Chen, John Wiley & Sons, England, 1999). Substitution of cysteine with α -amino butyric acid may occur at any residue of a peptide epitope, *i.e.* at either anchor or non-anchor positions.

30

III.G. Computer Screening of Protein Sequences from Disease-Related Antigens for Supermotif- or Motif-Bearing Peptides

In order to identify supermotif- or motif-bearing epitopes in a target antigen, a native protein sequence, *e.g.*, a tumor-associated antigen, or sequences from an

infectious organism, or a donor tissue for transplantation, is screened using a means for computing, such as an intellectual calculation or a computer, to determine the presence of a supermotif or motif within the sequence. The information obtained from the analysis of native peptide can be used directly to evaluate the status of the native peptide or may be
 5 utilized subsequently to generate the peptide epitope.

Computer programs that allow the rapid screening of protein sequences for the occurrence of the subject supermotifs or motifs are encompassed by the present invention; as are programs that permit the generation of analog peptides. These programs are implemented to analyze any identified amino acid sequence or operate on an unknown
 10 sequence and simultaneously determine the sequence and identify motif-bearing epitopes thereof; analogs can be simultaneously determined as well. Generally, the identified sequences will be from a pathogenic organism or a tumor-associated peptide. For example, the target molecules considered herein include, without limitation, the E1, E2, E4, E5a, E5b, E6, E7, L1 and L2 proteins of HPV.

15 In cases where the sequences of multiple variants of the same target protein are available, potential peptide epitopes can also be selected on the basis of their conservancy. For example, a criterion for conservancy may define that the entire sequence of an HLA class I binding peptide or the entire 9-mer core of a class II binding peptide, be conserved in a designated percentage, of the sequences evaluated for a
 20 specific protein antigen.

To target a broad population that may be infected with a number of different strains, it is preferable to include in vaccine compositions epitopes that are representative of HPV antigen sequences from different HPV strains. As appreciated by those in the art, regions with greater or lesser degrees of conservancy among HPV 6a,
 25 HPV 6b and/or HPV 11 can be employed as appropriate for a given antigenic target.

It is important that the selection criteria utilized for prediction of peptide binding are as accurate as possible, to correlate most efficiently with actual binding. Prediction of peptides that bind, for example, to HLA-A*0201, on the basis of the presence of the appropriate primary anchors, is positive at about a 30% rate (*see, e.g.,*
 30 Ruppert, J. *et al. Cell* 74:929, 1993). However, by extensively analyzing peptide-HLA binding data disclosed herein, data in related patent applications, and data in the art, the present inventors have developed a number of allele-specific polynomial algorithms that dramatically increase the predictive value over identification on the basis of the presence of primary anchor residues alone. These algorithms take into account not only the

presence or absence of primary anchors, but also consider the positive or deleterious presence of secondary anchor residues (to account for the impact of different amino acids at different positions). The algorithms are essentially based on the premise that the overall affinity (or ΔG) of peptide-HLA interactions can be approximated as a linear polynomial function of the type:

$$\Delta G = a_{1i} \times a_{2i} \times a_{3i} \dots \times a_{ni}$$

where a_{ji} is a coefficient that represents the effect of the presence of a given amino acid (j) at a given position (i) along the sequence of a peptide of n amino acids. An important assumption of this method is that the effects at each position are essentially independent of each other. This assumption is justified by studies that demonstrated that peptides are bound to HLA molecules and recognized by T cells in essentially an extended conformation. Derivation of specific algorithm coefficients has been described, for example, in Gulukota, K. *et al.*, *J. Mol. Biol.* 267:1258, 1997.

Additional methods to identify preferred peptide sequences, which also make use of specific motifs, include the use of neural networks and molecular modeling programs (see, e.g., Milik *et al.*, *Nature Biotechnology* 16:753, 1998; Altuvia *et al.*, *Hum. Immunol.* 58:1, 1997; Altuvia *et al.*, *J. Mol. Biol.* 249:244, 1995; Buus, S. *Curr. Opin. Immunol.* 11:209-213, 1999; Brusica, V. *et al.*, *Bioinformatics* 14:121-130, 1998; Parker *et al.*, *J. Immunol.* 152:163, 1993; Meister *et al.*, *Vaccine* 13:581, 1995; Hammer *et al.*, *J. Exp. Med.* 180:2353, 1994; Sturniolo *et al.*, *Nature Biotechnol.* 17:555 1999).

For example, it has been shown that in sets of A*0201 motif-bearing peptides containing at least one preferred secondary anchor residue while avoiding the presence of any deleterious secondary anchor residues, 69% of the peptides will bind A*0201 with an IC_{50} less than 500 nM (Ruppert, J. *et al.* *Cell* 74:929, 1993). These algorithms are also flexible in that cut-off scores may be adjusted to select sets of peptides with greater or lower predicted binding properties, as desired.

In utilizing computer screening to identify peptide epitopes, a protein sequence or translated sequence may be analyzed using software developed to search for motifs, for example the "FINDPATTERNS" program (Devereux, *et al.* *Nucl. Acids Res.* 12:387-395, 1984) or MotifSearch 1.4 software program (D. Brown, San Diego, CA) to identify potential peptide sequences containing appropriate HLA binding motifs. The identified peptides can be scored using customized polynomial algorithms to predict their capacity to bind specific HLA class I or class II alleles. As appreciated by one of

ordinary skill in the art, a large array of computer programming software and hardware options are available in the relevant art which can be employed to implement the motifs of the invention in order to evaluate (*e.g.*, without limitation, to identify epitopes, identify epitope concentration per peptide length, or to generate analogs) known or unknown peptide sequences.

In accordance with the procedures described above, HPV peptide epitopes and analogs thereof that are able to bind HLA supertype groups or allele-specific HLA molecules have been identified (Tables VII-XX).

10 III.H. Preparation of Peptide Epitopes

Peptides in accordance with the invention can be prepared synthetically, by recombinant DNA technology or chemical synthesis, or from natural sources such as native tumors or pathogenic organisms. Peptide epitopes may be synthesized individually or as polyepitopic peptides. Although the peptide will preferably be substantially free of other naturally occurring host cell proteins and fragments thereof, in some embodiments the peptides may be synthetically conjugated to native fragments or particles.

The peptides in accordance with the invention can be a variety of lengths, and either in their neutral (uncharged) forms or in forms which are salts. The peptides in accordance with the invention are either free of modifications such as glycosylation, side chain oxidation, or phosphorylation; or they contain these modifications, subject to the condition that modifications do not destroy the biological activity of the peptides as described herein.

When possible, it may be desirable to optimize HLA class I binding epitopes of the invention, such as can be used in a polyepitopic construct, to a length of about 8 to about 13 amino acid residues, often 8 to 11, preferably 9 to 10. HLA class II binding peptide epitopes of the invention may be optimized to a length of about 6 to about 30 amino acids in length, preferably to between about 13 and about 20 residues. Preferably, the peptide epitopes are commensurate in size with endogenously processed pathogen-derived peptides or tumor cell peptides that are bound to the relevant HLA molecules, however, the identification and preparation of peptides that comprise epitopes of the invention can also be carried out using the techniques described herein.

In alternative embodiments, epitopes of the invention can be linked as a polyepitopic peptide, or as a minigene that encodes a polyepitopic peptide.

In another embodiment, it is preferred to identify native peptide regions that contain a high concentration of class I and/or class II epitopes. Such a sequence is generally selected on the basis that it contains the greatest number of epitopes per amino acid length. It is to be appreciated that epitopes can be present in a nested or overlapping manner, *e.g.* a 10 amino acid long peptide could contain two 9 amino acid long epitopes and one 10 amino acid long epitope; upon intracellular processing, each epitope can be exposed and bound by an HLA molecule upon administration of such a peptide. This larger, preferably multi-epitopic, peptide can be generated synthetically, recombinantly, or via cleavage from the native source.

The peptides of the invention can be prepared in a wide variety of ways. For the preferred relatively short size, the peptides can be synthesized in solution or on a solid support in accordance with conventional techniques. Various automatic synthesizers are commercially available and can be used in accordance with known protocols. (*See, for example, Stewart & Young, SOLID PHASE PEPTIDE SYNTHESIS, 2D. ED., Pierce Chemical Co., 1984*). Further, individual peptide epitopes can be joined using chemical ligation to produce larger peptides that are still within the bounds of the invention.

Alternatively, recombinant DNA technology can be employed wherein a nucleotide sequence which encodes an immunogenic peptide of interest is inserted into an expression vector, transformed or transfected into an appropriate host cell and cultivated under conditions suitable for expression. These procedures are generally known in the art, as described generally in Sambrook *et al.*, *MOLECULAR CLONING, A LABORATORY MANUAL*, Cold Spring Harbor Press, Cold Spring Harbor, New York (1989). Thus, recombinant polypeptides which comprise one or more peptide sequences of the invention can be used to present the appropriate T cell epitope.

The nucleotide coding sequence for peptide epitopes of the preferred lengths contemplated herein can be synthesized by chemical techniques, for example, the phosphotriester method of Matteucci, *et al.*, *J. Am. Chem. Soc.* 103:3185 (1981). Peptide analogs can be made simply by substituting the appropriate and desired nucleic acid base(s) for those that encode the native peptide sequence; exemplary nucleic acid substitutions are those that encode an amino acid defined by the motifs/super motifs herein. The coding sequence can then be provided with appropriate linkers and ligated into expression vectors commonly available in the art, and the vectors used to transform suitable hosts to produce the desired fusion protein. A number of such vectors and

suitable host systems are now available. For expression of the fusion proteins, the coding sequence will be provided with operably linked start and stop codons, promoter and terminator regions and usually a replication system to provide an expression vector for expression in the desired cellular host. For example, promoter sequences compatible with bacterial hosts are provided in plasmids containing convenient restriction sites for insertion of the desired coding sequence. The resulting expression vectors are transformed into suitable bacterial hosts. Of course, yeast, insect or mammalian cell hosts may also be used, employing suitable vectors and control sequences.

III.I. Assays to Detect T-Cell Responses

Once HLA binding peptides are identified, they can be tested for the ability to elicit a T-cell response. The preparation and evaluation of motif-bearing peptides are described in PCT publications WO 94/20127 and WO 94/03205. Briefly, peptides comprising epitopes from a particular antigen are synthesized and tested for their ability to bind to the appropriate HLA proteins. These assays may involve evaluating the binding of a peptide of the invention to purified HLA class I molecules in relation to the binding of a radioiodinated reference peptide. Alternatively, cells expressing empty class I molecules (*i.e.* lacking peptide therein) may be evaluated for peptide binding by immunofluorescent staining and flow microfluorimetry. Other assays that may be used to evaluate peptide binding include peptide-dependent class I assembly assays and/or the inhibition of CTL recognition by peptide competition. Those peptides that bind to the class I molecule, typically with an affinity of 500 nM or less, are further evaluated for their ability to serve as targets for CTLs derived from infected or immunized individuals, as well as for their capacity to induce primary *in vitro* or *in vivo* CTL responses that can give rise to CTL populations capable of reacting with selected target cells associated with a disease.

Analogous assays are used for evaluation of HLA class II binding peptides. HLA class II motif-bearing peptides that are shown to bind, typically at an affinity of 1000 nM or less, are further evaluated for the ability to stimulate HTL responses.

Conventional assays utilized to detect T cell responses include proliferation assays, lymphokine secretion assays, direct cytotoxicity assays, and limiting dilution assays. For example, antigen-presenting cells that have been incubated with a peptide can be assayed for the ability to induce CTL responses in responder cell

populations. Antigen-presenting cells can be normal cells such as peripheral blood mononuclear cells or dendritic cells. Alternatively, mutant non-human mammalian cell lines that are deficient in their ability to load class I molecules with internally processed peptides and that have been transfected with the appropriate human class I gene, may be
 5 used to test for the capacity of the peptide to induce *in vitro* primary CTL responses.

Peripheral blood mononuclear cells (PBMCs) may be used as the responder cell source of CTL precursors. The appropriate antigen-presenting cells are incubated with peptide, after which the peptide-loaded antigen-presenting cells are then incubated with the responder cell population under optimized culture conditions. Positive
 10 CTL activation can be determined by assaying the culture for the presence of CTLs that kill radio-labeled target cells, both specific peptide-pulsed targets as well as target cells expressing endogenously processed forms of the antigen from which the peptide sequence was derived.

Additionally, a method has been devised which allows direct
 15 quantification of antigen-specific T cells by staining with Fluorescein-labelled HLA tetrameric complexes (Altman, J. D. *et al.*, *Proc. Natl. Acad. Sci. USA* 90:10330, 1993; Altman, J. D. *et al.*, *Science* 274:94, 1996). Other relatively recent technical developments include staining for intracellular lymphokines, and interferon release assays or ELISPOT assays. Tetramer staining, intracellular lymphokine staining and ELISPOT
 20 assays all appear to be at least 10-fold more sensitive than more conventional assays (Lalvani, A. *et al.*, *J. Exp. Med.* 186:859, 1997; Dunbar, P. R. *et al.*, *Curr. Biol.* 8:413, 1998; Murali-Krishna, K. *et al.*, *Immunity* 8:177, 1998).

HTL activation may also be assessed using such techniques known to those in the art such as T cell proliferation and secretion of lymphokines, *e.g.* IL-2 (*see*,
 25 *e.g.* Alexander *et al.*, *Immunity* 1:751-761, 1994).

Alternatively, immunization of HLA transgenic mice can be used to determine immunogenicity of peptide epitopes. Several transgenic mouse models including mice with human A2.1, A11 (which can additionally be used to analyze HLA-A3 epitopes), and B7 alleles have been characterized and others (*e.g.*, transgenic mice for
 30 HLA-A1 and A24) are being developed. HLA-DR1 and HLA-DR3 mouse models have also been developed. Additional transgenic mouse models with other HLA alleles may be generated as necessary. Mice may be immunized with peptides emulsified in Incomplete Freund's Adjuvant and the resulting T cells tested for their capacity to recognize peptide-pulsed target cells and target cells transfected with appropriate genes. CTL responses

may be analyzed using cytotoxicity assays described above. Similarly, HTL responses may be analyzed using such assays as T cell proliferation or secretion of lymphokines.

III.J. Use of Peptide Epitopes as Diagnostic Agents and for Evaluating Immune

5 Responses

In one aspect of the invention, HLA class I and class II binding peptides as described herein can be used as reagents to evaluate an immune response. The immune response to be evaluated is induced by using as an immunogen any agent that may result in the production of antigen-specific CTLs or HTLs that recognize and bind to the peptide
10 epitope(s) to be employed as the reagent. The peptide reagent need not be used as the immunogen. Assay systems that are used for such an analysis include relatively recent technical developments such as tetramers, staining for intracellular lymphokines and interferon release assays, or ELISPOT assays.

For example, a peptide of the invention is used in a tetramer staining assay
15 to assess peripheral blood mononuclear cells for the presence of antigen-specific CTLs following exposure to a pathogen or immunogen. The HLA-tetrameric complex is used to directly visualize antigen-specific CTLs (*see, e.g., Ogg et al., Science* 279:2103-2106, 1998; and Altman *et al., Science* 174:94-96, 1996) and determine the frequency of the antigen-specific CTL population in a sample of peripheral blood mononuclear cells.

A tetramer reagent using a peptide of the invention is generated as follows:
A peptide that binds to an HLA molecule is refolded in the presence of the corresponding HLA heavy chain and β_2 -microglobulin to generate a trimolecular complex. The complex is biotinylated at the carboxyl terminal end of the heavy chain at a site that was previously engineered into the protein. Tetramer formation is then induced by the addition of
25 streptavidin. By means of fluorescently labeled streptavidin, the tetramer can be used to stain antigen-specific cells. The cells can then be readily identified, for example, by flow cytometry. Such procedures are used for diagnostic or prognostic purposes. Cells identified by the procedure can also be used for therapeutic purposes.

Peptides of the invention are also used as reagents to evaluate immune
30 recall responses. (*see, e.g., Bertoni et al., J. Clin. Invest.* 100:503-513, 1997 and Penna *et al., J. Exp. Med.* 174:1565-1570, 1991.) For example, patient PBMC samples from individuals infected with HPV are analyzed for the presence of antigen-specific CTLs or HTLs using specific peptides. A blood sample containing mononuclear cells may be

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evaluated by cultivating the PBMCs and stimulating the cells with a peptide of the invention. After an appropriate cultivation period, the expanded cell population may be analyzed, for example, for CTL or for HTL activity.

The peptides are also used as reagents to evaluate the efficacy of a vaccine.

5 PBMCs obtained from a patient vaccinated with an immunogen are analyzed using, for example, either of the methods described above. The patient is HLA typed, and peptide epitope reagents that recognize the allele-specific molecules present in that patient are selected for the analysis. The immunogenicity of the vaccine is indicated by the presence of HPV epitope-specific CTLs and/or HTLs in the PBMC sample.

10 The peptides of the invention are also be used to make antibodies, using techniques well known in the art (see, e.g. *CURRENT PROTOCOLS IN IMMUNOLOGY*, Wiley/Greene, NY; and *Antibodies A Laboratory Manual* Harlow, Harlow and Lane, Cold Spring Harbor Laboratory Press, 1989), which may be useful as reagents to diagnose HPV infection. Such antibodies include those that recognize a peptide in the
15 context of an HLA molecule, *i.e.*, antibodies that bind to a peptide-MHC complex.

III.K. Vaccine Compositions

Vaccines and methods of preparing vaccines that contain an immunogenically effective amount of one or more peptides as described herein are further
20 embodiments of the invention. Once appropriately immunogenic epitopes have been defined, they can be sorted and delivered by various means, herein referred to as “vaccine” compositions. Such vaccine compositions can include, for example, lipopeptides (*e.g.*, Vitiello, A. *et al.*, *J. Clin. Invest.* 95:341, 1995), peptide compositions encapsulated in poly(DL-lactide-co-glycolide) (“PLG”) microspheres (*see, e.g.*, Eldridge,
25 *et al.*, *Molec. Immunol.* 28:287-294, 1991; Alonso *et al.*, *Vaccine* 12:299-306, 1994; Jones *et al.*, *Vaccine* 13:675-681, 1995), peptide compositions contained in immune stimulating complexes (ISCOMS) (*see, e.g.*, Takahashi *et al.*, *Nature* 344:873-875, 1990; Hu *et al.*, *Clin Exp Immunol.* 113:235-243, 1998), multiple antigen peptide systems (MAPs) (*see e.g.*, Tam, J. P., *Proc. Natl. Acad. Sci. U.S.A.* 85:5409-5413, 1988; Tam,
30 J.P., *J. Immunol. Methods* 196:17-32, 1996), peptides formulated as multivalent peptides; peptides for use in ballistic delivery systems, typically crystallized peptides, viral delivery vectors (Perkus, M. E. *et al.*, In: *Concepts in vaccine development*, Kaufmann, S. H. E., ed., p. 379, 1996; Chakrabarti, S. *et al.*, *Nature* 320:535, 1986; Hu, S. L. *et al.*, *Nature* 320:537, 1986; Kieny, M.-P. *et al.*, *AIDS Bio/Technology* 4:790, 1986; Top, F. H. *et al.*,

J. Infect. Dis. 124:148, 1971; Chanda, P. K. *et al.*, *Virology* 175:535, 1990), particles of viral or synthetic origin (*e.g.*, Kofler, N. *et al.*, *J. Immunol. Methods.* 192:25, 1996; Eldridge, J. H. *et al.*, *Sem. Hematol.* 30:16, 1993; Falo, L. D., Jr. *et al.*, *Nature Med.* 7:649, 1995), adjuvants (Warren, H. S., Vogel, F. R., and Chedid, L. A. *Annu. Rev. Immunol.* 4:369, 1986; Gupta, R. K. *et al.*, *Vaccine* 11:293, 1993), liposomes (Reddy, R. *et al.*, *J. Immunol.* 148:1585, 1992; Rock, K. L., *Immunol. Today* 17:131, 1996), or, naked or particle absorbed cDNA (Ulmer, J. B. *et al.*, *Science* 259:1745, 1993; Robinson, H. L., Hunt, L. A., and Webster, R. G., *Vaccine* 11:957, 1993; Shiver, J. W. *et al.*, In: *Concepts in vaccine development*, Kaufmann, S. H. E., ed., p. 423, 1996; Cease, K. B., and Berzofsky, J. A., *Annu. Rev. Immunol.* 12:923, 1994 and Eldridge, J. H. *et al.*, *Sem. Hematol.* 30:16, 1993). Toxin-targeted delivery technologies, also known as receptor mediated targeting, such as those of Avant Immunotherapeutics, Inc. (Needham, Massachusetts) may also be used.

Vaccine compositions of the invention include nucleic acid-mediated modalities. DNA or RNA encoding one or more of the peptides of the invention can also be administered to a patient. This approach is described, for instance, in Wolff *et al.*, *Science* 247:1465 (1990) as well as U.S. Patent Nos. 5,580,859; 5,589,466; 5,804,566; 5,739,118; 5,736,524; 5,679,647; WO 98/04720; and in more detail below. Examples of DNA-based delivery technologies include “naked DNA”, facilitated (bupivacaine, polymers, peptide-mediated) delivery, cationic lipid complexes, and particle-mediated (“gene gun”) or pressure-mediated delivery (*see, e.g.*, U.S. Patent No. 5,922,687).

For therapeutic or prophylactic immunization purposes, the peptides of the invention can be expressed by viral or bacterial vectors. Examples of expression vectors include attenuated viral hosts, such as vaccinia or fowlpox. This approach involves the use of vaccinia virus, for example, as a vector to express nucleotide sequences that encode the peptides of the invention. Upon introduction into an acutely or chronically infected host or into a non-infected host, the recombinant vaccinia virus expresses the immunogenic peptide, and thereby elicits a host CTL and/or HTL response. Vaccinia vectors and methods useful in immunization protocols are described in, *e.g.*, U.S. Patent No. 4,722,848. Another vector is BCG (Bacille Calmette Guerin). BCG vectors are described in Stover *et al.*, *Nature* 351:456-460 (1991). A wide variety of other vectors useful for therapeutic administration or immunization of the peptides of the invention, *e.g.* adeno and adeno-associated virus vectors, retroviral vectors, *Salmonella typhi*

vectors, detoxified anthrax toxin vectors, and the like, will be apparent to those skilled in the art from the description herein.

Furthermore, vaccines in accordance with the invention encompass compositions of one or more of the claimed peptides. A peptide can be present in a vaccine individually. Alternatively, the peptide can exist as a homopolymer comprising multiple copies of the same peptide, or as a heteropolymer of various peptides. Polymers have the advantage of increased immunological reaction and, where different peptide epitopes are used to make up the polymer, the additional ability to induce antibodies and/or CTLs that react with different antigenic determinants of the pathogenic organism or tumor-related peptide targeted for an immune response. The composition can be a naturally occurring region of an antigen or can be prepared, *e.g.*, recombinantly or by chemical synthesis.

Carriers that can be used with vaccines of the invention are well known in the art, and include, *e.g.*, thyroglobulin, albumins such as human serum albumin, tetanus toxoid, polyamino acids such as poly L-lysine, poly L-glutamic acid, influenza, hepatitis B virus core protein, and the like. The vaccines can contain a physiologically tolerable (*i.e.*, acceptable) diluent such as water, or saline, preferably phosphate buffered saline. The vaccines also typically include an adjuvant. Adjuvants such as incomplete Freund's adjuvant, aluminum phosphate, aluminum hydroxide, or alum are examples of materials well known in the art. Additionally, as disclosed herein, CTL responses can be primed by conjugating peptides of the invention to lipids, such as tripalmitoyl-S-glycerylcysteinylserine (P₃CSS).

Upon immunization with a peptide composition in accordance with the invention, via injection, aerosol, oral, transdermal, transmucosal, intrapleural, intrathecal, or other suitable routes, the immune system of the host responds to the vaccine by producing large amounts of CTLs and/or HTLs specific for the desired antigen. Consequently, the host becomes at least partially immune to later infection, or at least partially resistant to developing an ongoing chronic infection, or derives at least some therapeutic benefit when the antigen was tumor-associated.

In some embodiments, it may be desirable to combine the class I peptide components with components that induce or facilitate neutralizing antibody and or helper T cell responses to the target antigen of interest. A preferred embodiment of such a composition comprises class I and class II epitopes in accordance with the invention. An alternative embodiment of such a composition comprises a class I and/or class II epitope

in accordance with the invention, along with a PADRE™ (Epimmune, San Diego, CA) molecule (described, for example, in U.S. Patent Number 5,736,142).

A vaccine of the invention can also include antigen-presenting cells (APC), such as dendritic cells (DC), as a vehicle to present peptides of the invention.

5 Vaccine compositions can be created *in vitro*, following dendritic cell mobilization and harvesting, whereby loading of dendritic cells occurs *in vitro*. For example, dendritic cells are transfected, *e.g.*, with a minigene in accordance with the invention, or are pulsed with peptides. The dendritic cell can then be administered to a patient to elicit immune responses *in vivo*.

10 Vaccine compositions, either DNA- or peptide-based, can also be administered *in vivo* in combination with dendritic cell mobilization whereby loading of dendritic cells occurs *in vivo*.

Antigenic peptides are used to elicit a CTL and/or HTL response *ex vivo*, as well. The resulting CTL or HTL cells, can be used to treat chronic infections, or
 15 tumors in patients that do not respond to other conventional forms of therapy, or will not respond to a therapeutic vaccine peptide or nucleic acid in accordance with the invention. *Ex vivo* CTL or HTL responses to a particular antigen (infectious or tumor-associated antigen) are induced by incubating in tissue culture the patient's, or genetically compatible, CTL or HTL precursor cells together with a source of antigen-presenting
 20 cells (APC), such as dendritic cells, and the appropriate immunogenic peptide. After an appropriate incubation time (typically about 7-28 days), in which the precursor cells are activated and expanded into effector cells, the cells are infused back into the patient, where they will destroy (CTL) or facilitate destruction (HTL) of their specific target cell (an infected cell or a tumor cell). Transfected dendritic cells may also be used as antigen
 25 presenting cells.

The vaccine compositions of the invention can also be used in combination with other treatments used for cancer, including use in combination with immune adjuvants such as IL-2, IL-12, GM-CSF, and the like.

Preferably, the following principles are utilized when selecting an array of
 30 epitopes for inclusion in a polyepitopic composition for use in a vaccine, or for selecting discrete epitopes to be included in a vaccine and/or to be encoded by nucleic acids such as a minigene. It is preferred that each of the following principles are balanced in order to make the selection. The multiple epitopes to be incorporated in a given vaccine

composition may be, but need not be, contiguous in sequence in the native antigen from which the epitopes are derived.

1.) Epitopes are selected which, upon administration, mimic immune responses that have been observed to be correlated with clearance of HPV infection or tumor clearance. For HLA Class I this includes 3-4 epitopes that come from at least one TAA. For HLA Class II a similar rationale is employed; again 3-4 epitopes are selected from at least one TAA (*see, e.g., Rosenberg et al., Science 278:1447-1450*). Epitopes from one TAA may be used in combination with epitopes from one or more additional TAAs to produce a vaccine that targets tumors with varying expression patterns of frequently-expressed TAAs as described, *e.g.,* in Example 15.

2.) Epitopes are selected that have the requisite binding affinity established to be correlated with immunogenicity: for HLA Class I an IC_{50} of 500 nM or less, often 200 nM or less; and for Class II an IC_{50} of 1000 nM or less.

3.) Sufficient supermotif bearing-peptides, or a sufficient array of allele-specific motif-bearing peptides, are selected to give broad population coverage. For example, it is preferable to have at least 80% population coverage. A Monte Carlo analysis, a statistical evaluation known in the art, can be employed to assess the breadth, or redundancy of, population coverage.

4.) When selecting epitopes from cancer-related antigens it is often useful to select analogs because the patient may have developed tolerance to the native epitope. When selecting epitopes for infectious disease-related antigens it is preferable to select either native or analoged epitopes.

5.) Of particular relevance are epitopes referred to as "nested epitopes." Nested epitopes occur where at least two epitopes overlap in a given peptide sequence. A nested peptide sequence can comprise both HLA class I and HLA class II epitopes. When providing nested epitopes, a general objective is to provide the greatest number of epitopes per sequence. Thus, an aspect is to avoid providing a peptide that is any longer than the amino terminus of the amino terminal epitope and the carboxyl terminus of the carboxyl terminal epitope in the peptide. When providing a multi-epitopic sequence, such as a sequence comprising nested epitopes, it is generally important to screen the sequence in order to insure that it does not have pathological or other deleterious biological properties.

6.) If a polyepitopic protein is created, or when creating a minigene, an objective is to generate the smallest peptide that encompasses the epitopes of interest.

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This principle is similar, if not the same as that employed when selecting a peptide comprising nested epitopes. However, with an artificial polyepitopic peptide, the size minimization objective is balanced against the need to integrate any spacer sequences between epitopes in the polyepitopic protein. Spacer amino acid residues can, for example, be introduced to avoid junctional epitopes (an epitope recognized by the immune system, not present in the target antigen, and only created by the man-made juxtaposition of epitopes), or to facilitate cleavage between epitopes and thereby enhance epitope presentation. Junctional epitopes are generally to be avoided because the recipient may generate an immune response to that non-native epitope. Of particular concern is a junctional epitope that is a “dominant epitope.” A dominant epitope may lead to such a zealous response that immune responses to other epitopes are diminished or suppressed.

7.) In cases where the sequences of multiple variants of the same target protein are available, potential peptide epitopes can also be selected on the basis of their conservancy. For example, a criterion for conservancy may define that the entire sequence of an HLA class I binding peptide or the entire 9-mer core of a class II binding peptide be conserved in a designated percentage of the sequences evaluated for a specific protein antigen.

8.) When selecting an array of epitopes of an infectious agent, it is preferred that at least some of the epitopes are derived from early and late proteins. The early proteins of HPV are expressed when the virus is replicating, either following acute or dormant infection. Therefore, it is particularly preferred to use epitopes from early stage proteins to alleviate disease manifestations at the earliest stage possible.

III.K.1. Minigene Vaccines

A number of different approaches are available which allow simultaneous delivery of multiple epitopes. Nucleic acids encoding the peptides of the invention are a particularly useful embodiment of the invention. Epitopes for inclusion in a minigene are preferably selected according to the guidelines set forth in the previous section. A preferred means of administering nucleic acids encoding the peptides of the invention uses minigene constructs encoding a peptide comprising one or multiple epitopes of the invention.

The use of multi-epitope minigenes is described below and in, *e.g.*, co-pending application U.S.S.N. 09/311,784; Ishioka *et al.*, *J. Immunol.* 162:3915-3925,

1999; An, L. and Whitton, J. L., *J. Virol.* 71:2292, 1997; Thomson, S. A. *et al.*, *J. Immunol.* 157:822, 1996; Whitton, J. L. *et al.*, *J. Virol.* 67:348, 1993; Hanke, R. *et al.*, *Vaccine* 16:426, 1998. For example, a multi-epitope DNA plasmid encoding supermotif- and/or motif-bearing epitopes derived from multiple regions of one or more HPV antigens, the PADRE™ universal helper T cell epitope (or multiple HTL epitopes from HPV antigens), and an endoplasmic reticulum-translocating signal sequence can be engineered. A vaccine may also comprise epitopes that are derived from other TAAs.

The immunogenicity of a multi-epitopic minigene can be tested in transgenic mice to evaluate the magnitude of CTL induction responses against the epitopes tested. Further, the immunogenicity of DNA-encoded epitopes *in vivo* can be correlated with the *in vitro* responses of specific CTL lines against target cells transfected with the DNA plasmid. Thus, these experiments can show that the minigene serves to both: 1.) generate a CTL response and 2.) that the induced CTLs recognized cells expressing the encoded epitopes.

For example, to create a DNA sequence encoding the selected epitopes (minigene) for expression in human cells, the amino acid sequences of the epitopes may be reverse translated. A human codon usage table can be used to guide the codon choice for each amino acid. These epitope-encoding DNA sequences may be directly adjoined, so that when translated, a continuous polypeptide sequence is created. To optimize expression and/or immunogenicity, additional elements can be incorporated into the minigene design. Examples of amino acid sequences that can be reverse translated and included in the minigene sequence include: HLA class I epitopes, HLA class II epitopes, a ubiquitination signal sequence, and/or an endoplasmic reticulum targeting signal. In addition, HLA presentation of CTL and HTL epitopes may be improved by including synthetic (*e.g.* poly-alanine) or naturally-occurring flanking sequences adjacent to the CTL or HTL epitopes; these larger peptides comprising the epitope(s) are within the scope of the invention.

The minigene sequence may be converted to DNA by assembling oligonucleotides that encode the plus and minus strands of the minigene. Overlapping oligonucleotides (30-100 bases long) may be synthesized, phosphorylated, purified and annealed under appropriate conditions using well known techniques. The ends of the oligonucleotides can be joined, for example, using T4 DNA ligase. This synthetic

minigene, encoding the epitope polypeptide, can then be cloned into a desired expression vector.

Standard regulatory sequences well known to those of skill in the art are preferably included in the vector to ensure expression in the target cells. Several vector elements are desirable: a promoter with a down-stream cloning site for minigene insertion; a polyadenylation signal for efficient transcription termination; an *E. coli* origin of replication; and an *E. coli* selectable marker (*e.g.* ampicillin or kanamycin resistance). Numerous promoters can be used for this purpose, *e.g.*, the human cytomegalovirus (hCMV) promoter. See, *e.g.*, U.S. Patent Nos. 5,580,859 and 5,589,466 for other suitable promoter sequences.

Additional vector modifications may be desired to optimize minigene expression and immunogenicity. In some cases, introns are required for efficient gene expression, and one or more synthetic or naturally-occurring introns could be incorporated into the transcribed region of the minigene. The inclusion of mRNA stabilization sequences and sequences for replication in mammalian cells may also be considered for increasing minigene expression.

Once an expression vector is selected, the minigene is cloned into the polylinker region downstream of the promoter. This plasmid is transformed into an appropriate *E. coli* strain, and DNA is prepared using standard techniques. The orientation and DNA sequence of the minigene, as well as all other elements included in the vector, are confirmed using restriction mapping and DNA sequence analysis. Bacterial cells harboring the correct plasmid can be stored as a master cell bank and a working cell bank.

In addition, immunostimulatory sequences (ISSs or CpGs) appear to play a role in the immunogenicity of DNA vaccines. These sequences may be included in the vector, outside the minigene coding sequence, if desired to enhance immunogenicity.

In some embodiments, a bi-cistronic expression vector which allows production of both the minigene-encoded epitopes and a second protein (included to enhance or decrease immunogenicity) can be used. Examples of proteins or polypeptides that could beneficially enhance the immune response if co-expressed include cytokines (*e.g.*, IL-2, IL-12, GM-CSF), cytokine-inducing molecules (*e.g.*, LeIF), costimulatory molecules, or for HTL responses, pan-DR binding proteins (PADRE™, Epimmune, San Diego, CA). Helper (HTL) epitopes can be joined to intracellular targeting signals and

expressed separately from expressed CTL epitopes; this allows direction of the HTL epitopes to a cell compartment different than that of the CTL epitopes. If required, this could facilitate more efficient entry of HTL epitopes into the HLA class II pathway, thereby improving HTL induction. In contrast to HTL or CTL induction, specifically
 5 decreasing the immune response by co-expression of immunosuppressive molecules (*e.g.* TGF- β) may be beneficial in certain diseases.

Therapeutic quantities of plasmid DNA can be produced for example, by fermentation in *E. coli*, followed by purification. Aliquots from the working cell bank are used to inoculate growth medium, and grown to saturation in shaker flasks or a bioreactor
 10 according to well known techniques. Plasmid DNA can be purified using standard bioseparation technologies such as solid phase anion-exchange resins supplied by QIAGEN, Inc. (Valencia, California). If required, supercoiled DNA can be isolated from the open circular and linear forms using gel electrophoresis or other methods.

Purified plasmid DNA can be prepared for injection using a variety of
 15 formulations. The simplest of these is reconstitution of lyophilized DNA in sterile phosphate-buffer saline (PBS). This approach, known as "naked DNA," is currently being used for intramuscular (IM) administration in clinical trials. To maximize the immunotherapeutic effects of minigene DNA vaccines, an alternative method for formulating purified plasmid DNA may be desirable. A variety of methods have been
 20 described, and new techniques may become available. Cationic lipids, glycolipids, and fusogenic liposomes can also be used in the formulation (see, *e.g.*, as described by WO 93/24640; Mannino & Gould-Fogerite, *BioTechniques* 6(7): 682 (1988); U.S. Pat No. 5,279,833; WO 91/06309; and Felgner, *et al.*, *Proc. Nat'l Acad. Sci. USA* 84:7413 (1987). In addition, peptides and compounds referred to collectively as protective, interactive,
 25 non-condensing compounds (PINC) could also be complexed to purified plasmid DNA to influence variables such as stability, intramuscular dispersion, or trafficking to specific organs or cell types.

Target cell sensitization can be used as a functional assay for expression and HLA class I presentation of minigene-encoded CTL epitopes. For example, the
 30 plasmid DNA is introduced into a mammalian cell line that is suitable as a target for standard CTL chromium release assays. The transfection method used will be dependent on the final formulation. Electroporation can be used for "naked" DNA, whereas cationic lipids allow direct *in vitro* transfection. A plasmid expressing green fluorescent protein

(GFP) can be co-transfected to allow enrichment of transfected cells using fluorescence activated cell sorting (FACS). These cells are then chromium-51 (^{51}Cr) labeled and used as target cells for epitope-specific CTL lines; cytolysis, detected by ^{51}Cr release, indicates both production of, and HLA presentation of, minigene-encoded CTL epitopes.

- 5 Expression of HTL epitopes may be evaluated in an analogous manner using assays to assess HTL activity.

In vivo immunogenicity is a second approach for functional testing of minigene DNA formulations. Transgenic mice expressing appropriate human HLA proteins are immunized with the DNA product. The dose and route of administration are
 10 formulation dependent (*e.g.*, IM for DNA in PBS, intraperitoneal (i.p.) for lipid-complexed DNA). Twenty-one days after immunization, splenocytes are harvested and restimulated for one week in the presence of peptides encoding each epitope being tested. Thereafter, for CTL effector cells, assays are conducted for cytolysis of peptide-loaded,
 15 ^{51}Cr -labeled target cells using standard techniques. Lysis of target cells that were sensitized by HLA loaded with peptide epitopes, corresponding to minigene-encoded epitopes, demonstrates DNA vaccine function for *in vivo* induction of CTLs. Immunogenicity of HTL epitopes is evaluated in transgenic mice in an analogous manner.

Alternatively, the nucleic acids can be administered using ballistic delivery as described, for instance, in U.S. Patent No. 5,204,253. Using this technique, particles
 20 comprised solely of DNA are administered. In a further alternative embodiment, DNA can be adhered to particles, such as gold particles.

Minigenes can also be delivered using other bacterial or viral delivery systems well known in the art, *e.g.*, an expression construct encoding epitopes of the invention can be incorporated into a viral vector such as vaccinia.

25

III.K.2. Combinations of CTL Peptides with Helper Peptides

Vaccine compositions comprising CTL peptides of the invention can be modified to provide desired attributes, such as improved serum half life, broadened population coverage or enhanced immunogenicity.

30 For instance, the ability of a peptide to induce CTL activity can be enhanced by linking the peptide to a sequence which contains at least one epitope that is capable of inducing a T helper cell response. The use of T helper epitopes in conjunction with CTL epitopes to enhance immunogenicity is illustrated, for example, in the co-

pending applications U.S.S.N. 08/820,360, U.S.S.N. 08/197,484, and U.S.S.N. 08/464,234.

Although a CTL peptide can be directly linked to a T helper peptide, often CTL epitope/HTL epitope conjugates are linked by a spacer molecule. The spacer is typically comprised of relatively small, neutral molecules, such as amino acids or amino acid mimetics, which are substantially uncharged under physiological conditions. The spacers are typically selected from, *e.g.*, Ala, Gly, or other neutral spacers of nonpolar amino acids or neutral polar amino acids. It will be understood that the optionally present spacer need not be comprised of the same residues and thus may be a hetero- or homo-oligomer. When present, the spacer will usually be at least one or two residues, more usually three to six residues and sometimes 10 or more residues. The CTL peptide epitope can be linked to the T helper peptide epitope either directly or via a spacer either at the amino or carboxy terminus of the CTL peptide. The amino terminus of either the immunogenic peptide or the T helper peptide may be acylated.

In certain embodiments, the T helper peptide is one that is recognized by T helper cells present in the majority of the population. This can be accomplished by selecting peptides that bind to many, most, or all of the HLA class II molecules. These are known as "loosely HLA-restricted" or "promiscuous" T helper sequences. Examples of amino acid sequences that are promiscuous include sequences from antigens such as tetanus toxoid at positions 830-843 (QYIKANSKFIGITE; SEQ ID NO: 51484), *Plasmodium falciparum* circumsporozoite (CS) protein at positions 378-398 (DIEKKIAKMEKASSVFNVNS; SEQ ID NO: 51485), and *Streptococcus* 18kD protein at positions 116 (GAVDSILGGVATYGAA; SEQ ID NO: 51486). Other examples include peptides bearing a DR 1-4-7 supermotif, or either of the DR3 motifs.

Alternatively, it is possible to prepare synthetic peptides capable of stimulating T helper lymphocytes, in a loosely HLA-restricted fashion, using amino acid sequences not found in nature (*see, e.g.*, PCT publication WO 95/07707). These synthetic compounds called Pan-DR-binding epitopes (*e.g.*, PADRE™, Epimmune, Inc., San Diego, CA) are designed to most preferably bind most HLA-DR (human HLA class II) molecules. For instance, a pan-DR-binding epitope peptide having the formula: aKXVAAWTLKAAa, where "X" is either cyclohexylalanine, phenylalanine, or tyrosine, and a is either D-alanine or L-alanine, has been found to bind to most HLA-DR alleles, and to stimulate the response of T helper lymphocytes from most individuals, regardless

of their HLA type. An alternative of a pan-DR binding epitope comprises all "L" natural amino acids and can be provided in the form of nucleic acids that encode the epitope.

HTL peptide epitopes can also be modified to alter their biological properties. For example, they can be modified to include D-amino acids to increase their resistance to proteases and thus extend their serum half life, or they can be conjugated to other molecules such as lipids, proteins, carbohydrates, and the like to increase their biological activity. For example, a T helper peptide can be conjugated to one or more palmitic acid chains at either the amino or carboxyl termini.

10 III.K.3. Combinations of CTL Peptides with T Cell Priming Agents

In some embodiments it may be desirable to include in the pharmaceutical compositions of the invention at least one component which primes cytotoxic T lymphocytes. Lipids have been identified as agents capable of priming CTL *in vivo* against viral antigens. For example, palmitic acid residues can be attached to the ϵ - and α - amino groups of a lysine residue and then linked, *e.g.*, via one or more linking residues such as Gly, Gly-Gly-, Ser, Ser-Ser, or the like, to an immunogenic peptide. The lipidated peptide can then be administered either directly in a micelle or particle, incorporated into a liposome, or emulsified in an adjuvant, *e.g.*, incomplete Freund's adjuvant. In a preferred embodiment, a particularly effective immunogenic composition comprises palmitic acid attached to ϵ - and α - amino groups of Lys, which is attached via linkage, *e.g.*, Ser-Ser, to the amino terminus of the immunogenic peptide.

As another example of lipid priming of CTL responses, *E. coli* lipoproteins, such as tripalmitoyl-S-glycerylcysteinylserine (P₃CSS) can be used to prime virus specific CTL when covalently attached to an appropriate peptide (*see, e.g.*, Deres, *et al.*, *Nature* 342:561, 1989). Peptides of the invention can be coupled to P₃CSS, for example, and the lipopeptide administered to an individual to specifically prime a CTL response to the target antigen. Moreover, because the induction of neutralizing antibodies can also be primed with P₃CSS-conjugated epitopes, two such compositions can be combined to more effectively elicit both humoral and cell-mediated responses.

CTL and/or HTL peptides can also be modified by the addition of amino acids to the termini of a peptide to provide for ease of linking peptides one to another, for coupling to a carrier support or larger peptide, for modifying the physical or chemical properties of the peptide or oligopeptide, or the like. Amino acids such as tyrosine,

cysteine, lysine, glutamic or aspartic acid, or the like, can be introduced at the C- or N-terminus of the peptide or oligopeptide, particularly class I peptides. However, it is to be noted that modification at the carboxyl terminus of a CTL epitope may, in some cases, alter binding characteristics of the peptide. In addition, the peptide or oligopeptide sequences can differ from the natural sequence by being modified by terminal-NH₂ acylation, *e.g.*, by alkanoyl (C1-C20) or thioglycolyl acetylation, terminal-carboxyl amidation, *e.g.*, ammonia, methylamine, *etc.* In some instances these modifications may provide sites for linking to a support or other molecule.

10 IV.J.4. Vaccine Compositions Comprising DC Pulsed with CTL and/or HTL Peptides

An embodiment of a vaccine composition in accordance with the invention comprises *ex vivo* administration of a cocktail of epitope-bearing peptides to PBMC, or isolated DC therefrom, from the patient's blood. A pharmaceutical to facilitate harvesting of DC can be used, such as Progenipoietin™ (Monsanto, St. Louis, MO) or GM-CSF/IL-4. After pulsing the DC with peptides and prior to reinfusion into patients, the DC are washed to remove unbound peptides. In this embodiment, a vaccine comprises peptide-pulsed DCs which present the pulsed peptide epitopes complexed with HLA molecules on their surfaces.

20 The DC can be pulsed *ex vivo* with a cocktail of peptides, some of which stimulate CTL responses to one or more HPV antigens of interest. Optionally, a helper T cell (HTL) peptide such as a PADRE family molecule, can be included to facilitate the CTL response. Thus, a vaccine in accordance with the invention, preferably comprising epitopes from multiple HPV antigens, is used to treat HPV infection or cancer resulting from HPV infection.

III.L. Administration of Vaccines for Therapeutic or Prophylactic Purposes

The peptides of the present invention and pharmaceutical and vaccine compositions of the invention are typically used to treat and/or prevent cancer associated with HPV infection. Vaccine compositions containing the peptides of the invention are administered to a patient infected with HPV or to an individual susceptible to, or otherwise at risk for, HPV infection to elicit an immune response against HPV antigens and thus enhance the patient's own immune response capabilities.

As noted above, peptides comprising CTL and/or HTL epitopes of the invention induce immune responses when presented by HLA molecules and contacted with a CTL or HTL specific for an epitope comprised by the peptide. The peptides (or DNA encoding them) can be administered individually or as fusions of one or more peptide sequences. The manner in which the peptide is contacted with the CTL or HTL is not critical to the invention. For instance, the peptide can be contacted with the CTL or HTL either *in vivo* or *in vitro*. If the contacting occurs *in vivo*, the peptide itself can be administered to the patient, or other vehicles, *e.g.*, DNA vectors encoding one or more peptides, viral vectors encoding the peptide(s), liposomes and the like, can be used, as described herein.

When the peptide is contacted *in vitro*, the vaccinating agent can comprise a population of cells, *e.g.*, peptide-pulsed dendritic cells, or HPV-specific CTLs, which have been induced by pulsing antigen-presenting cells *in vitro* with the peptide or by transfecting antigen-presenting cells with a minigene of the invention. Such a cell population is subsequently administered to a patient in a therapeutically effective dose.

In therapeutic applications, peptide and/or nucleic acid compositions are administered to a patient in an amount sufficient to elicit an effective CTL and/or HTL response to the virus antigen and to cure or at least partially arrest or slow symptoms and/or complications. An amount adequate to accomplish this is defined as "therapeutically effective dose." Amounts effective for this use will depend on, *e.g.*, the particular composition administered, the manner of administration, the stage and severity of the disease being treated, the weight and general state of health of the patient, and the judgment of the prescribing physician.

For pharmaceutical compositions, the immunogenic peptides of the invention, or DNA encoding them, are generally administered to an individual already infected with HPV. The peptides or DNA encoding them can be administered individually or as fusions of one or more peptide sequences. HPV-infected patients, with or without neoplasia, can be treated with the immunogenic peptides separately or in conjunction with other treatments, such as surgery, as appropriate.

For therapeutic use, administration should generally begin at the first diagnosis of HPV infection or HPV-associated cancer. This is followed by boosting doses until at least symptoms are substantially abated and for a period thereafter. The embodiment of the vaccine composition (*i.e.*, including, but not limited to embodiments such as peptide cocktails, polyepitopic polypeptides, minigenes, or TAA-specific CTLs or

pulsed dendritic cells) delivered to the patient may vary according to the stage of the disease or the patient's health status. For example, in a patient with a tumor that expresses HPV antigens, a vaccine comprising HPV-specific CTL may be more efficacious in killing tumor cells in patient with advanced disease than alternative
 5 embodiments.

Where susceptible individuals are identified prior to or during infection, the composition can be targeted to them, thus minimizing the need for administration to a larger population. Susceptible populations include those individuals who are sexually
 active.

10 The peptide or other compositions used for the treatment or prophylaxis of HPV infection can be used, *e.g.*, in persons who have not manifested symptoms, *e.g.*, neoplasia. In this context, it is generally important to provide an amount of the peptide epitope delivered by a mode of administration sufficient to effectively stimulate a cytotoxic T cell response; compositions which stimulate helper T cell responses can also
 15 be given in accordance with this embodiment of the invention.

 The dosage for an initial therapeutic immunization generally occurs in a unit dosage range where the lower value is about 1, 5, 50, 500, or 1,000 μg and the higher value is about 10,000; 20,000; 30,000; or 50,000 μg . Dosage values for a human typically range from about 500 μg to about 50,000 μg per 70 kilogram patient. Boosting
 20 dosages of between about 1.0 μg to about 50,000 μg of peptide pursuant to a boosting regimen over weeks to months may be administered depending upon the patient's response and condition as determined by measuring the specific activity of CTL and HTL obtained from the patient's blood. Administration should continue until at least clinical symptoms or laboratory tests indicate that the viral infection, or neoplasia, has been
 25 eliminated or reduced and for a period thereafter. The dosages, routes of administration, and dose schedules are adjusted in accordance with methodologies known in the art.

 In certain embodiments, the peptides and compositions of the present invention are employed in serious disease states, that is, life-threatening or potentially life threatening situations. In such cases, as a result of the minimal amounts of extraneous
 30 substances and the relative nontoxic nature of the peptides in preferred compositions of the invention, it is possible and may be felt desirable by the treating physician to administer substantial excesses of these peptide compositions relative to these stated dosage amounts.

The vaccine compositions of the invention can also be used purely as prophylactic agents. Generally the dosage for an initial prophylactic immunization generally occurs in a unit dosage range where the lower value is about 1, 5, 50, 500, or 1000 μg and the higher value is about 10,000; 20,000; 30,000; or 50,000 μg . Dosage values for a human typically range from about 500 μg to about 50,000 μg per 70 kilogram patient. This is followed by boosting dosages of between about 1.0 μg to about 50,000 μg of peptide administered at defined intervals from about four weeks to six months after the initial administration of vaccine. The immunogenicity of the vaccine can be assessed by measuring the specific activity of CTL and HTL obtained from a sample of the patient's blood.

The pharmaceutical compositions for therapeutic treatment are intended for parenteral, topical, oral, intrathecal, or local (*e.g.* as a cream or topical ointment) administration. Preferably, the pharmaceutical compositions are administered parentally, *e.g.*, intravenously, subcutaneously, intradermally, or intramuscularly. Thus, the invention provides compositions for parenteral administration which comprise a solution of the immunogenic peptides dissolved or suspended in an acceptable carrier, preferably an aqueous carrier. A variety of aqueous carriers may be used, *e.g.*, water, buffered water, 0.8% saline, 0.3% glycine, hyaluronic acid and the like. These compositions may be sterilized by conventional, well known sterilization techniques, or may be sterile filtered. The resulting aqueous solutions may be packaged for use as is, or lyophilized, the lyophilized preparation being combined with a sterile solution prior to administration. The compositions may contain pharmaceutically acceptable auxiliary substances as required to approximate physiological conditions, such as pH-adjusting and buffering agents, tonicity adjusting agents, wetting agents, preservatives, and the like, for example, sodium acetate, sodium lactate, sodium chloride, potassium chloride, calcium chloride, sorbitan monolaurate, triethanolamine oleate, *etc.*

The concentration of peptides of the invention in the pharmaceutical formulations can vary widely, *i.e.*, from less than about 0.1%, usually at or at least about 2% to as much as 20% to 50% or more by weight, and will be selected primarily by fluid volumes, viscosities, *etc.*, in accordance with the particular mode of administration selected.

A human unit dose form of the peptide composition is typically included in a pharmaceutical composition that comprises a human unit dose of an acceptable carrier, preferably an aqueous carrier, and is administered in a volume of fluid that is known by

those of skill in the art to be used for administration of such compositions to humans (*see, e.g., Remington's Pharmaceutical Sciences*, 17th Edition, A. Gennaro, Editor, Mack Publishing Co., Easton, Pennsylvania, 1985).

The peptides of the invention, and/or nucleic acids encoding the peptides, can also be administered via liposomes, which may also serve to target the peptides to a particular tissue, such as lymphoid tissue, or to target selectively to infected cells, as well as to increase the half-life of the peptide composition. Liposomes include emulsions, foams, micelles, insoluble monolayers, liquid crystals, phospholipid dispersions, lamellar layers and the like. In these preparations, the peptide to be delivered is incorporated as part of a liposome, alone or in conjunction with a molecule which binds to a receptor prevalent among lymphoid cells, such as monoclonal antibodies which bind to the CD45 antigen, or with other therapeutic or immunogenic compositions. Thus, liposomes either filled or decorated with a desired peptide of the invention can be directed to the site of lymphoid cells, where the liposomes then deliver the peptide compositions. Liposomes for use in accordance with the invention are formed from standard vesicle-forming lipids, which generally include neutral and negatively charged phospholipids and a sterol, such as cholesterol. The selection of lipids is generally guided by consideration of, *e.g.*, liposome size, acid lability and stability of the liposomes in the blood stream. A variety of methods are available for preparing liposomes, as described in, *e.g.*, Szoka, *et al.*, *Ann. Rev. Biophys. Bioeng.* 9:467 (1980), and U.S. Patent Nos. 4,235,871, 4,501,728, 4,837,028, and 5,019,369.

For targeting cells of the immune system, a ligand to be incorporated into the liposome can include, *e.g.*, antibodies or fragments thereof specific for cell surface determinants of the desired immune system cells. A liposome suspension containing a peptide may be administered intravenously, locally, topically, *etc.* in a dose which varies according to, *inter alia*, the manner of administration, the peptide being delivered, and the stage of the disease being treated.

For solid compositions, conventional nontoxic solid carriers may be used which include, for example, pharmaceutical grades of mannitol, lactose, starch, magnesium stearate, sodium saccharin, talcum, cellulose, glucose, sucrose, magnesium carbonate, and the like. For oral administration, a pharmaceutically acceptable nontoxic composition is formed by incorporating any of the normally employed excipients, such as those carriers previously listed, and generally 10-95% of active ingredient, that is, one or more peptides of the invention, and more preferably at a concentration of 25%-75%.

For aerosol administration, the immunogenic peptides are preferably supplied in finely divided form along with a surfactant and propellant. Typical percentages of peptides are 0.01%-20% by weight, preferably 1%-10%. The surfactant must, of course, be nontoxic, and preferably soluble in the propellant. Representative of
 5 such agents are the esters or partial esters of fatty acids containing from 6 to 22 carbon atoms, such as caproic, octanoic, lauric, palmitic, stearic, linoleic, linolenic, olesteric and oleic acids with an aliphatic polyhydric alcohol or its cyclic anhydride. Mixed esters, such as mixed or natural glycerides may be employed. The surfactant may constitute 0.1%-20% by weight of the composition, preferably 0.25-5%. The balance of the
 10 composition is ordinarily propellant. A carrier can also be included, as desired, as with, *e.g.*, lecithin for intranasal delivery.

III.M. Kits

The peptide and nucleic acid compositions of this invention can be
 15 provided in kit form together with instructions for vaccine administration. Typically the kit would include desired peptide compositions in a container, preferably in unit dosage form and instructions for administration. An alternative kit would include a minigene construct with desired nucleic acids of the invention in a container, preferably in unit dosage form together with instructions for administration. Lymphokines such as IL-2 or
 20 IL-12 may also be included in the kit. Other kit components that may also be desirable include, for example, a sterile syringe, booster dosages, and other desired excipients.

Epitopes in accordance with the present invention were successfully used to induce an immune response. Immune responses with these epitopes have been induced
 25 by administering the epitopes in various forms. The epitopes have been administered as peptides, as nucleic acids, and as viral vectors comprising nucleic acids that encode the epitope(s) of the invention. Upon administration of peptide-based epitope forms, immune responses have been induced by direct loading of an epitope onto an empty HLA molecule that is expressed on a cell, and via internalization of the epitope and processing
 30 via the HLA class I pathway; in either event, the HLA molecule expressing the epitope was then able to interact with and induce a CTL response. Peptides can be delivered directly or using such agents as liposomes. They can additionally be delivered using ballistic delivery, in which the peptides are typically in a crystalline form. When DNA is used to induce an immune response, it is administered either as naked DNA, generally in

a dose range of approximately 1-5mg, or via the ballistic “gene gun” delivery, typically in a dose range of approximately 10-100 µg. The DNA can be delivered in a variety of conformations, *e.g.*, linear, circular *etc.* Various viral vectors have also successfully been used that comprise nucleic acids which encode epitopes in accordance with the invention.

5 Accordingly compositions in accordance with the invention exist in several forms. Embodiments of each of these composition forms in accordance with the invention have been successfully used to induce an immune response.

 One composition in accordance with the invention comprises a plurality of peptides. This plurality or cocktail of peptides is generally admixed with one or more
10 pharmaceutically acceptable excipients. The peptide cocktail can comprise multiple copies of the same peptide or can comprise a mixture of peptides. The peptides can be analogs of naturally occurring epitopes. The peptides can comprise artificial amino acids and/or chemical modifications such as addition of a surface active molecule, *e.g.*, lipidation; acetylation, glycosylation, biotinylation, phosphorylation *etc.* The peptides
15 can be CTL or HTL epitopes. In a preferred embodiment the peptide cocktail comprises a plurality of different CTL epitopes and at least one HTL epitope. The HTL epitope can be naturally or non-naturally (*e.g.*, PADRE®, Epimmune Inc., San Diego, CA). The number of distinct epitopes in an embodiment of the invention is generally a whole unit integer from one through one hundred fifty (*e.g.*, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
20 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, or 150).

 An additional embodiment of a composition in accordance with the
25 invention comprises a polypeptide multi-epitope construct, *i.e.*, a polyepitopic peptide. Polyepitopic peptides in accordance with the invention are prepared by use of technologies well-known in the art. By use of these known technologies, epitopes in accordance with the invention are connected one to another. The polyepitopic peptides can be linear or non-linear, *e.g.*, multivalent. These polyepitopic constructs can comprise
30 artificial amino acids, spacing or spacer amino acids, flanking amino acids, or chemical modifications between adjacent epitope units. The polyepitopic construct can be a heteropolymer or a homopolymer. The polyepitopic constructs generally comprise epitopes in a quantity of any whole unit integer between 2-150 (*e.g.*, 2, 3, 4, 5, 6, 7, 8, 9,

10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, or 150). The

5 polyepitopic construct can comprise CTL and/or HTL epitopes. One or more of the epitopes in the construct can be modified, *e.g.*, by addition of a surface active material, *e.g.* a lipid, or chemically modified, *e.g.*, acetylation, *etc.* Moreover, bonds in the multiepitopic construct can be other than peptide bonds, *e.g.*, covalent bonds, ester or ether bonds, disulfide bonds, hydrogen bonds, ionic bonds *etc.*

10 Alternatively, a composition in accordance with the invention comprises construct which comprises a series, sequence, stretch, *etc.*, of amino acids that have homology to (*i.e.*, corresponds to or is contiguous with) to a native sequence. This stretch of amino acids comprises at least one subsequence of amino acids that, if cleaved or isolated from the longer series of amino acids, functions as an HLA class I or HLA
15 class II epitope in accordance with the invention. In this embodiment, the peptide sequence is modified, so as to become a construct as defined herein, by use of any number of techniques known or to be provided in the art. The polyepitopic constructs can contain homology to a native sequence in any whole unit integer increment from 70-100%, *e.g.*, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90,
20 91, 92, 93, 94, 95, 96, 97, 98, 99, or, 100 percent.

A further embodiment of a composition in accordance with the invention is an antigen presenting cell that comprises one or more epitopes in accordance with the invention. The antigen presenting cell can be a “professional” antigen presenting cell, such as a dendritic cell. The antigen presenting cell can comprise the epitope of the
25 invention by any means known or to be determined in the art. Such means include pulsing of dendritic cells with one or more individual epitopes or with one or more peptides that comprise multiple epitopes, by nucleic acid administration such as ballistic nucleic acid delivery or by other techniques in the art for administration of nucleic acids, including vector-based, *e.g.* viral vector, delivery of nucleic acids.

30 Further embodiments of compositions in accordance with the invention comprise nucleic acids that encode one or more peptides of the invention, or nucleic acids which encode a polyepitopic peptide in accordance with the invention. As appreciated by one of ordinary skill in the art, various nucleic acids compositions will encode the same peptide due to the redundancy of the genetic code. Each of these nucleic acid

compositions falls within the scope of the present invention. This embodiment of the invention comprises DNA or RNA, and in certain embodiments a combination of DNA and RNA. It is to be appreciated that any composition comprising nucleic acids that will encode a peptide in accordance with the invention or any other peptide based composition in accordance with the invention, falls within the scope of this invention.

It is to be appreciated that peptide-based forms of the invention (as well as the nucleic acids that encode them) can comprise analogs of epitopes of the invention generated using principles already known, or to be known, in the art. Principles related to analoging are now known in the art, and are disclosed herein; moreover, analoging principles (heteroclitic analoging) are disclosed in co-pending application serial number U.S.S.N. 09/226,775 filed 6 January 1999. Generally the compositions of the invention are isolated or purified.

The invention will be described in greater detail by way of specific examples. The following examples are offered for illustrative purposes, and are not intended to limit the invention in any manner. Those of skill in the art will readily recognize a variety of non-critical parameters that can be changed or modified to yield alternative embodiments in accordance with the invention.

IV. EXAMPLES

The following example of peptide binding to HLA molecules demonstrates quantification of binding affinities of HLA class I and class II peptides. Binding assays can be performed with peptides that are either motif-bearing or not motif-bearing.

Example 1. HLA Class I and Class II Binding Assays

Cell lysates were prepared and HLA molecules purified in accordance with disclosed protocols (Sidney *et al.*, *Current Protocols in Immunology* 18.3.1 (1998); Sidney, *et al.*, *J. Immunol.* 154:247 (1995); Sette, *et al.*, *Mol. Immunol.* 31:813 (1994)). The cell lines used as sources of HLA molecules and the antibodies used for the extraction of the HLA molecules from the cell lysates are also described in these publications.

Epstein-Barr virus (EBV)-transformed homozygous cell lines, fibroblasts, CIR, or 721.221-transfectants were used as sources of HLA class I molecules. These cells were maintained *in vitro* by culture in RPMI 1640 medium supplemented with 2mM

L-glutamine (GIBCO, Grand Island, NY), 50 μ M 2-ME, 100 μ g/ml of streptomycin, 100U/ml of penicillin (Irvine Scientific) and 10% heat-inactivated FCS (Irvine Scientific, Santa Ana, CA). Cells were grown in 225-cm² tissue culture flasks or, for large-scale cultures, in roller bottle apparatuses.

5 Cell lysates were prepared and HLA molecules purified in accordance with disclosed protocols (Sidney *et al.*, *Current Protocols in Immunology* 18.3.1 (1998); Sidney, *et al.*, *J. Immunol.* 154:247 (1995); Sette, *et al.*, *Mol. Immunol.* 31:813 (1994)). Briefly, cells were lysed at a concentration of 10⁸ cells/ml in 50 mM Tris-HCl, pH 8.5, containing 1% Nonidet P-40 (Fluka Biochemika, Buchs, Switzerland), 150 mM NaCl, 5
10 mM EDTA, and 2 mM PMSF. Lysates were cleared of debris and nuclei by centrifugation at 15,000 x g for 30min.

HLA molecules were purified from lysates by affinity chromatography. Lysates prepared as above were passed twice through two pre-columns of inactivated
15 Sepharose CL4-B and protein A-Sepharose. Next, the lysate was passed over a column of Sepharose CL4B beads coupled to an appropriate antibody. The anti-HLA column was then washed with 10-column volumes of 10mM Tris-HCL, pH 8.0, in 1% NP-40, PBS, 2-column volumes of PBS, and 2-column volumes of PBS containing 0.4% n-octylglucoside. Finally, MHC molecules were eluted with 50mM diethylamine in 0.15M NaCl containing 0.4% n-octylglucoside, pH 11.5. A 1/25 volume of 2.0M Tris, pH 6.8,
20 was added to the eluate to reduce the pH to ~8.0. Eluates were then concentrated by centrifugation in Centriprep 30 concentrators at 2000 rpm (Amicon, Beverly, MA). Protein content was evaluated by a BCA protein assay (Pierce Chemical Co., Rockford, IL) and confirmed by SDS-PAGE.

A detailed description of the protocol utilized to measure the binding of
25 peptides to Class I and Class II MHC has been published (Sette *et al.*, *Mol. Immunol.* 31:813, 1994; Sidney *et al.*, in *Current Protocols in Immunology*, Margulies, Ed., John Wiley & Sons, New York, Section 18.3, 1998). Briefly, purified MHC molecules (5 to 500nM) were incubated with various unlabeled peptide inhibitors and 1-10nM ¹²⁵I-
30 radiolabeled probe peptides for 48h in PBS containing 0.05% Nonidet P-40 (NP40) (or 20% w/v digitonin for H-2 IA assays) in the presence of a protease inhibitor cocktail. The final concentrations of protease inhibitors (each from CalBioChem, La Jolla, CA) were 1 mM PMSF, 1.3 nM 1.10 phenanthroline, 73 μ M pepstatin A, 8mM EDTA, 6mM N-ethylmaleimide (for Class II assays), and 200 μ M N alpha-p-tosyl-L-lysine

chloromethyl ketone (TLCK). All assays were performed at pH 7.0 with the exception of DRB1*0301, which was performed at pH 4.5, and DRB1*1601 (DR2w21 β ₁) and DRB4*0101 (DRw53), which were performed at pH 5.0. pH was adjusted as described elsewhere (see Sidney *et al.*, in *Current Protocols in Immunology*, Margulies, Ed., John Wiley & Sons, New York, Section 18.3, 1998).

Following incubation, MHC-peptide complexes were separated from free peptide by gel filtration on 7.8 mm x 15 cm TSK200 columns (TosoHaas 16215, Montgomeryville, PA), eluted at 1.2 mls/min with PBS pH 6.5 containing 0.5% NP40 and 0.1% NaN₃. Because the large size of the radiolabeled peptide used for the DRB1*1501 (DR2w2 β ₁) assay makes separation of bound from unbound peaks more difficult under these conditions, all DRB1*1501 (DR2w2 β ₁) assays were performed using a 7.8mm x 30cm TSK2000 column eluted at 0.6 mls/min. The eluate from the TSK columns was passed through a Beckman 170 radioisotope detector, and radioactivity was plotted and integrated using a Hewlett-Packard 3396A integrator, and the fraction of peptide bound was determined.

Radiolabeled peptides were iodinated using the chloramine-T method. Representative radiolabeled probe peptides utilized in each assay, and its assay specific IC₅₀ nM, are summarized in Tables IV and V. Typically, in preliminary experiments, each MHC preparation was titrated in the presence of fixed amounts of radiolabeled peptides to determine the concentration of HLA molecules necessary to bind 10-20% of the total radioactivity. All subsequent inhibition and direct binding assays were performed using these HLA concentrations.

Since under these conditions [label]<[HLA] and IC₅₀≥[HLA], the measured IC₅₀ values are reasonable approximations of the true K_D values. Peptide inhibitors are typically tested at concentrations ranging from 120 μ g/ml to 1.2 ng/ml, and are tested in two to four completely independent experiments. To allow comparison of the data obtained in different experiments, a relative binding figure is calculated for each peptide by dividing the IC₅₀ of a positive control for inhibition by the IC₅₀ for each tested peptide (typically unlabeled versions of the radiolabeled probe peptide). For inter-experiment comparisons, relative binding values are compiled. These values can subsequently be converted back into IC₅₀ nM values by dividing the IC₅₀ nM of the positive controls for inhibition by the relative binding of the peptide of interest. This method of data compilation has proven to be the most accurate and consistent for

comparing peptides that have been tested on different days, or with different lots of purified MHC.

Because the antibody used for HLA-DR purification (LB3.1) is α -chain specific, β_1 molecules are not separated from β_3 (and/or β_4 and β_5) molecules. The β_1 specificity of the binding assay is obvious in the cases of DRB1*0101 (DR1), DRB1*0802 (DR8w2), and DRB1*0803 (DR8w3), where no β_3 is expressed. It has also been demonstrated for DRB1*0301 (DR3) and DRB3*0101 (DR52a), DRB1*0401 (DR4w4), DRB1*0404 (DR4w14), DRB1*0405 (DR4w15), DRB1*1101 (DR5), DRB1*1201 (DR5w12), DRB1*1302 (DR6w19) and DRB1*0701 (DR7). The problem of β chain specificity for DRB1*1501 (DR2w2 β_1), DRB5*0101 (DR2w2 β_2), DRB1*1601 (DR2w21 β_1), DRB5*0201 (DR51Dw21), and DRB4*0101 (DRw53) assays is circumvented by the use of fibroblasts. Development and validation of assays with regard to DR β molecule specificity have been described previously (*see, e.g., Southwood et al.; J. Immunol.* 160:3363-3373, 1998).

Binding assays as outlined above may be used to analyze supermotif and/or motif-bearing epitopes as, for example, described in Example 2.

Example 2. Identification of HLA Supermotif- and Motif-Bearing CTL Candidate Epitopes

Vaccine compositions of the invention can include multiple epitopes that comprise multiple HLA supermotifs or motifs to achieve broad population coverage. This example illustrates the identification of supermotif- and motif-bearing epitopes for the inclusion in such a vaccine composition. Calculation of population coverage was performed using the strategy described below.

Computer searches and algorithms for identification of supermotif and/or motif-bearing epitopes

The searches performed to identify the motif-bearing peptide sequences in Examples 2 and 5 employed the protein sequence data from seven proteins (E1, E2, E5, E6, E7, L1 and L2) from HPV types 16, 18, 31, 33, 45, and 56. (*See, Table XXII for Accession numbers.*)

Computer searches for epitopes bearing HLA Class I or Class II supermotifs or motifs were performed as follows. All translated HPV protein sequences

were analyzed using a text string search software program, *e.g.*, MotifSearch 1.4 (D. Brown, San Diego) to identify potential peptide sequences containing appropriate HLA binding motifs; alternative programs are readily produced in accordance with information in the art in view of the motif/supermotif disclosure herein. Furthermore, such

5 calculations can be made mentally.

Identified A2-, A3-, and DR-supermotif sequences were scored using polynomial algorithms to predict their capacity to bind to specific HLA-Class I or Class II molecules. These polynomial algorithms take into account both extended and refined motifs (that is, to account for the impact of different amino acids at different positions),

10 and are essentially based on the premise that the overall affinity (or ΔG) of peptide-HLA molecule interactions can be approximated as a linear polynomial function of the type:

$$“\Delta G” = a_{1i} \times a_{2i} \times a_{3i} \dots \times a_{ni}$$

where a_{ji} is a coefficient which represents the effect of the presence of a given amino acid (j) at a given position (i) along the sequence of a peptide of n amino

15 acids. The crucial assumption of this method is that the effects at each position are essentially independent of each other (i.e., independent binding of individual side-chains). When residue j occurs at position i in the peptide, it is assumed to contribute a constant amount j_i to the free energy of binding of the peptide irrespective of the sequence of the rest of the peptide. This assumption is justified by studies from our laboratories that

20 demonstrated that peptides are bound to MHC and recognized by T cells in essentially an extended conformation (data omitted herein).

The method of derivation of specific algorithm coefficients has been described in Gulukota *et al.*, *J. Mol. Biol.* 267:1258-126, 1997; (see also Sidney *et al.*, *Human Immunol.* 45:79-93, 1996; and Southwood *et al.*, *J. Immunol.* 160:3363-3373,

25 1998). Briefly, for all i positions, anchor and non-anchor alike, the geometric mean of the average relative binding (ARB) of all peptides carrying j is calculated relative to the remainder of the group, and used as the estimate of j_i . For Class II peptides, if multiple alignments are possible, only the highest scoring alignment is utilized, following an iterative procedure. To calculate an algorithm score of a given peptide in a test set, the

30 ARB values corresponding to the sequence of the peptide are multiplied. If this product exceeds a chosen threshold, the peptide is predicted to bind. Appropriate thresholds are chosen as a function of the degree of stringency of prediction desired.

Selection of HLA-A2 supertype cross-reactive peptides

Complete protein sequences from the seven HPV structural and regulatory proteins of the HPV strains listed above were aligned, then scanned, utilizing motif identification software, to identify 9- and 10-mer sequences containing the HLA-A2-supermotif main anchor specificity.

HLA-A2 supermotif-bearing sequences are shown in Table VIII. Typically, these sequences are then scored using the A2 algorithm and the peptides corresponding to the positive-scoring sequences are synthesized and tested for their capacity to bind purified HLA-A*0201 molecules *in vitro* (HLA-A*0201 is considered a prototype A2 supertype molecule).

Examples of peptides that bind to HLA-A*0201 with IC₅₀ values ≤500 nM are shown in Table VII. These peptides are then tested for the capacity to bind to additional A2-supertype molecules (A*0202, A*0203, A*0206, and A*6802). Peptides that bind to at least three of the five A2-supertype alleles tested are typically deemed A2-supertype cross-reactive binders. Preferred peptides bind at an affinity equal to or less than 500 nM to three or more HLA-A2 supertype molecules.

Selection of HLA-A3 supermotif-bearing epitopes

The HPV protein sequences scanned above were also examined for the presence of peptides with the HLA-A3-supermotif primary anchors (Table IX).

Peptides corresponding to the supermotif-bearing sequences are then synthesized and tested for binding to HLA-A*0301 and HLA-A*1101 molecules, the two most prevalent A3-supertype alleles. The peptides that are found to bind one of the two alleles with binding affinities of ≤500 nM, often ≤ 200 nM, are then tested for binding cross-reactivity to the other common A3-supertype alleles (A*3101, A*3301, and A*6801) to identify those that can bind at least three of the five HLA-A3-supertype molecules tested.

Selection of HLA-B7 supermotif bearing epitopes

The same HPV target antigen protein sequences were also analyzed for the presence of 9- or 10-mer peptides with the HLA-B7-supermotif (Table XI).

Corresponding peptides are synthesized and tested for binding to HLA-B*0702, the most common B7-supertype allele (*i.e.*, the prototype B7 supertype allele).

Peptides binding B*0702 with IC₅₀ of ≤500 nM are identified using standard methods. These peptides are then tested for binding to other common B7-supertype molecules (B*3501, B*5101, B*5301, and B*5401). Peptides capable of binding to three or more of the five B7-supertype alleles tested are thereby identified.

5

Selection of A1 and A24 motif-bearing epitopes

To further increase population coverage, HLA-A1 and -A24 epitopes can, for example, also be incorporated into potential vaccine constructs. An analysis of the protein sequence data from the HPV target antigens utilized above can also be performed to identify HLA-A1- and A24-motif-containing sequences.

10

High affinity and/or cross-reactive binding epitopes that bear other motif and/or supermotifs can be identified using analogous methodology.

Example 3. Confirmation of Immunogenicity

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Cross-reactive candidate CTL A2-supermotif-bearing peptides that are identified as described in Example 2 were selected for *in vitro* immunogenicity testing. Testing was performed using the following methodology:

Target Cell Lines for Cellular Screening:

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The .221A2.1 cell line, produced by transferring the HLA-A2.1 gene into the HLA-A, -B, -C null mutant human B-lymphoblastoid cell line 721.221, is used as the peptide-loaded target to measure activity of HLA-A2.1-restricted CTL. This cell line is grown in RPMI-1640 medium supplemented with antibiotics, sodium pyruvate, nonessential amino acids and 10% (v/v) heat inactivated FCS. Cells that express an antigen of interest, or transfectants comprising the gene encoding the antigen of interest, can be used as target cells to test the ability of peptide-specific CTLs to recognize endogenous antigen.

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Primary CTL Induction Cultures:

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Generation of Dendritic Cells (DC): PBMCs are thawed in RPMI with 30 µg/ml DNase, washed twice and resuspended in complete medium (RPMI-1640 plus 5% AB human serum, non-essential amino acids, sodium pyruvate, L-glutamine and penicillin/strptomycin). The monocytes are purified by plating 10 x 10⁶ PBMC/well in

a 6-well plate. After 2 hours at 37°C, the non-adherent cells are removed by gently shaking the plates and aspirating the supernatants. The wells are washed a total of three times with 3 ml RPMI to remove most of the non-adherent and loosely adherent cells. Three ml of complete medium containing 50 ng/ml of GM-CSF and 1,000 U/ml of IL-4 are then added to each well. TNF α is added to the DCs on day 6 at 75 ng/ml and the cells are used for CTL induction cultures on day 7.

Induction of CTL with DC and Peptide: CD8⁺ T-cells are isolated by positive selection with Dynal immunomagnetic beads (Dynabeads® M-450) and the detach-bead® reagent. Typically about 200-250x10⁶ PBMC are processed to obtain 24x10⁶ CD8⁺ T-cells (enough for a 48-well plate culture). Briefly, the PBMCs are thawed in RPMI with 30µg/ml DNase, washed once with PBS containing 1% human AB serum and resuspended in PBS/1% AB serum at a concentration of 20x10⁶ cells/ml. The magnetic beads are washed 3 times with PBS/AB serum, added to the cells (140µl beads/20x10⁶ cells) and incubated for 1 hour at 4°C with continuous mixing. The beads and cells are washed 4x with PBS/AB serum to remove the nonadherent cells and resuspended at 100x10⁶ cells/ml (based on the original cell number) in PBS/AB serum containing 100µl/ml detach-bead® reagent and 30µg/ml DNase. The mixture is incubated for 1 hour at room temperature with continuous mixing. The beads are washed again with PBS/AB/DNase to collect the CD8⁺ T-cells. The DC are collected and centrifuged at 1300 rpm for 5-7 minutes, washed once with PBS with 1% BSA, counted and pulsed with 40µg/ml of peptide at a cell concentration of 1-2x10⁶/ml in the presence of 3µg/ml β_2 - microglobulin for 4 hours at 20°C. The DC are then irradiated (4,200 rads), washed 1 time with medium and counted again.

Setting up induction cultures: 0.25 ml cytokine-generated DC (@1x10⁵ cells/ml) are co-cultured with 0.25ml of CD8⁺ T-cells (@2x10⁶ cell/ml) in each well of a 48-well plate in the presence of 10 ng/ml of IL-7. Recombinant human IL10 is added the next day at a final concentration of 10 ng/ml and rhuman IL2 is added 48 hours later at 10IU/ml.

Restimulation of the induction cultures with peptide-pulsed adherent cells: Seven and fourteen days after the primary induction the cells are restimulated with peptide-pulsed adherent cells. The PBMCs are thawed and washed twice with RPMI and DNase. The cells are resuspended at 5x10⁶ cells/ml and irradiated at ~4200 rads. The PBMCs are plated at 2x10⁶ in 0.5ml complete medium per well and incubated for 2 hours

at 37°C. The plates are washed twice with RPMI by tapping the plate gently to remove the nonadherent cells and the adherent cells pulsed with 10µg/ml of peptide in the presence of 3 µg/ml β₂ microglobulin in 0.25ml RPMI/5%AB per well for 2 hours at 37°C. Peptide solution from each well is aspirated and the wells are washed once with

- 5 RPMI. Most of the media is aspirated from the induction cultures (CD8+ cells) and brought to 0.5 ml with fresh media. The cells are then transferred to the wells containing the peptide-pulsed adherent cells. Twenty four hours later rhuman IL10 is added at a final concentration of 10ng/ml and rhuman IL2 is added the next day and again 2-3 days later at 50IU/ml (Tsai *et al.*, *Critical Reviews in Immunology* 18(1-2):65-75, 1998).
- 10 Seven days later the cultures are assayed for CTL activity in a ⁵¹Cr release assay. In some experiments the cultures are assayed for peptide-specific recognition in the *in situ* IFNγ ELISA at the time of the second restimulation followed by assay of endogenous recognition 7 days later. After expansion, activity is measured in both assays for a side by side comparison.

15 **Measurement of CTL lytic activity by ⁵¹Cr release.**

Seven days after the second restimulation, cytotoxicity is determined in a standard (5hr) ⁵¹Cr release assay by assaying individual wells at a single E:T. Peptide-pulsed targets are prepared by incubating the cells with 10µg/ml peptide overnight at 37°C.

- 20 Adherent target cells are removed from culture flasks with trypsin-EDTA. Target cells are labelled with 200µCi of ⁵¹Cr sodium chromate (Dupont, Wilmington, DE) for 1 hour at 37°C. Labelled target cells are resuspended at 10⁶ per ml and diluted 1:10 with K562 cells at a concentration of 3.3x10⁶/ml (an NK-sensitive erythroblastoma cell line used to reduce non-specific lysis). Target cells (100 µl) and 100µl of effectors
- 25 are plated in 96 well round-bottom plates and incubated for 5 hours at 37°C. At that time, 100 µl of supernatant are collected from each well and percent lysis is determined according to the formula: [(cpm of the test sample- cpm of the spontaneous ⁵¹Cr release sample)/(cpm of the maximal ⁵¹Cr release sample- cpm of the spontaneous ⁵¹Cr release sample)] x 100. Maximum and spontaneous release are determined by incubating the
- 30 labelled targets with 1% Triton X-100 and media alone, respectively. A positive culture is defined as one in which the specific lysis (sample- background) is 10% or higher in the case of individual wells and is 15% or more at the 2 highest E:T ratios when expanded cultures are assayed.

***In situ* Measurement of Human γ IFN Production as an Indicator of Peptide-specific and Endogenous Recognition**

Immulon 2 plates are coated with mouse anti-human IFN γ monoclonal antibody (4 μ g/ml 0.1M NaHCO₃, pH8.2) overnight at 4°C. The plates are washed with
 5 Ca²⁺, Mg²⁺-free PBS/0.05% Tween 20 and blocked with PBS/10% FCS for 2 hours, after which the CTLs (100 μ l/well) and targets (100 μ l/well) are added to each well, leaving empty wells for the standards and blanks (which received media only). The target cells, either peptide-pulsed or endogenous targets, are used at a concentration of 1x10⁶ cells/ml. The plates are incubated for 48 hours at 37°C with 5% CO₂.

10 Recombinant human IFN γ is added to the standard wells starting at 400 pg or 1200pg/100 μ l/well and the plate incubated for 2 hours at 37°C. The plates are washed and 100 μ l of biotinylated mouse anti-human IFN γ monoclonal antibody (2 μ g/ml in PBS/3%FCS/0.05% Tween 20) are added and incubated for 2 hours at room temperature. After washing again, 100 μ l HRP-streptavidin (1:4000) are added and the plates
 15 incubated for 1 hour at room temperature. The plates are then washed 6x with wash buffer, 100 μ l/well developing solution (TMB 1:1) are added, and the plates allowed to develop for 5-15 minutes. The reaction is stopped with 50 μ l/well 1M H₃PO₄ and read at OD450. A culture is considered positive if it measured at least 50 pg of IFN γ /well above background and is twice the background level of expression.

20 **CTL Expansion.** Those cultures that demonstrate specific lytic activity against peptide-pulsed targets and/or tumor targets are expanded over a two week period with anti-CD3. Briefly, 5x10⁴ CD8⁺ cells are added to a T25 flask containing the following: 1x10⁶ irradiated (4,200 rad) PBMC (autologous or allogeneic) per ml, 2x10⁵ irradiated (8,000 rad) EBV- transformed cells per ml, and OKT3 (anti-CD3) at 30ng per
 25 ml in RPMI-1640 containing 10% (v/v) human AB serum, non-essential amino acids, sodium pyruvate, 25 μ M 2-mercaptoethanol, L-glutamine and penicillin/streptomycin. Rhuman IL2 is added 24 hours later at a final concentration of 200IU/ml and every 3 days thereafter with fresh media at 50IU/ml. The cells are split if the cell concentration exceeded 1x10⁶/ml and the cultures are assayed between days 13 and 15 at E:T ratios of
 30 30, 10, 3 and 1:1 in the ⁵¹Cr. release assay or at 1x10⁶/ml in the *in situ* IFN γ assay using the same targets as before the expansion.

Cultures are expanded in the absence of anti-CD3⁺ as follows. Those cultures that demonstrate specific lytic activity against peptide and endogenous targets are

selected and 5×10^4 CD8⁺ cells are added to a T25 flask containing the following: 1×10^6 autologous PBMC per ml which have been peptide-pulsed with 10µg/ml peptide for 2 hours at 37°C and irradiated (4,200 rad); 2×10^5 irradiated (8,000 rad) EBV-transformed cells per ml RPMI-1640 containing 10%(v/v) human AB serum, non-essential AA,
 5 sodium pyruvate, 25mM 2-ME, L-glutamine and gentamicin.

Immunogenicity of A2 supermotif-bearing peptides

A2-supermotif cross-reactive binding peptides are tested in the cellular assay for the ability to induce peptide-specific CTL in normal individuals. In this
 10 analysis, a peptide is typically considered to be an epitope if it induces peptide-specific CTLs in at least 2 donors (unless otherwise noted) and preferably, also recognizes the endogenously expressed peptide.

Immunogenicity is additionally confirmed using PBMCs isolated from HPV-infected patients. Briefly, PBMCs are isolated from patients, re-stimulated with
 15 peptide-pulsed monocytes and assayed for the ability to recognize peptide-pulsed target cells as well as transfected cells endogenously expressing the antigen.

*Evaluation of A*03/A11 immunogenicity*

HLA-A3 supermotif-bearing cross-reactive binding peptides are also evaluated for
 20 immunogenicity using methodology analogous for that used to evaluate the immunogenicity of the HLA-A2 supermotif peptides.

Evaluation of B7 immunogenicity

Immunogenicity screening of the B7-supertype cross-reactive binding
 25 peptides identified in Example 2 are evaluated in a manner analogous to the evaluation of A2-and A3-supermotif-bearing peptides.

Peptides bearing other supermotifs/motifs, *e.g.*, HLA-A1, HLA-A24 *etc.* are also evaluated using similar methodology

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Example 4. Implementation of the Extended Supermotif to Improve the Binding Capacity of Native Epitopes by Creating Analogs

HLA motifs and supermotifs (comprising primary and/or secondary residues) are useful in the identification and preparation of highly cross-reactive native peptides, as demonstrated herein. Moreover, the definition of HLA motifs and supermotifs also allows one to engineer highly cross-reactive epitopes by identifying residues within a native peptide sequence which can be analoged, or “fixed” to confer upon the peptide certain characteristics, *e.g.* greater cross-reactivity within the group of HLA molecules that comprise a supertype, and/or greater binding affinity for some or all of those HLA molecules. Examples of analoging peptides to exhibit modulated binding affinity are set forth in this example.

Analoging at Primary Anchor Residues

Peptide engineering strategies are implemented to further increase the cross-reactivity of the epitopes. For example, on the basis of the data disclosed, *e.g.*, in related and co-pending U.S.S.N 09/226,775, the main anchors of A2-supermotif-bearing peptides are altered, for example, to introduce a preferred L, I, V, or M at position 2, and I or V at the C-terminus.

To analyze the cross-reactivity of the analog peptides, each engineered analog is initially tested for binding to the prototype A2 supertype allele A*0201, then, if A*0201 binding capacity is maintained, for A2-supertype cross-reactivity.

Alternatively, a peptide is tested for binding to one or all supertype members and then analogued to modulate binding affinity to any one (or more) of the supertype members to add population coverage.

The selection of analogs for immunogenicity in a cellular screening analysis is typically further restricted by the capacity of the parent peptide to bind at least weakly, *i.e.*, bind at an IC_{50} of 5000nM or less, to three or more A2 supertype alleles. The rationale for this requirement is that the WT peptides must be present endogenously in sufficient quantity to be biologically relevant. Analoged peptides have been shown to have increased immunogenicity and cross-reactivity by T cells specific for the parent epitope (*see, e.g.*, Parkhurst *et al.*, *J. Immunol.* 157:2539, 1996; and Pogue *et al.*, *Proc. Natl. Acad. Sci. USA* 92:8166, 1995).

In the cellular screening of these peptide analogs, it is important to demonstrate that analog-specific CTLs are also able to recognize the wild-type peptide and, when possible, target cells that endogenously express the epitope.

5 *Analoging of HLA-A3 and B7-supermotif-bearing peptides*

Analogues of HLA-A3 supermotif-bearing epitopes are generated using strategies similar to those employed in analoging HLA-A2 supermotif-bearing peptides. For example, peptides binding to 3/5 of the A3-supertype molecules are engineered at primary anchor residues to possess a preferred residue (V, S, M, or A) at position 2.

10 The analog peptides are then tested for the ability to bind A*03 and A*11 (prototype A3 supertype alleles). Those peptides that demonstrate ≤ 500 nM binding capacity are then tested for A3-supertype cross-reactivity.

Similarly to the A2- and A3- motif bearing peptides, peptides binding 3 or more B7-supertype alleles can be improved, where possible, to achieve increased cross-reactive binding. B7 supermotif-bearing peptides are, for example, engineered to possess a preferred residue (V, I, L, or F) at the C-terminal primary anchor position, as demonstrated by Sidney *et al.* (*J. Immunol.* 157:3480-3490, 1996).

15 Analoguing at primary anchor residues of other motif and/or supermotif-bearing epitopes is performed in a like manner.

20 The analog peptides are then be tested for immunogenicity, typically in a cellular screening assay. Again, it is generally important to demonstrate that analog-specific CTLs are also able to recognize the wild-type peptide and, when possible, targets that endogenously express the epitope.

25 *Analoging at Secondary Anchor Residues*

Moreover, HLA supermotifs are of value in engineering highly cross-reactive peptides and/or peptides that bind HLA molecules with increased affinity by identifying particular residues at secondary anchor positions that are associated with such properties. For example, the binding capacity of a B7 supermotif-bearing peptide with an F residue at position 1 is analyzed. The peptide is then analoged to, for example, substitute L for F at position 1. The analoged peptide is evaluated for increased binding affinity/ and or increased cross-reactivity. Such a procedure identifies analoged peptides with modulated binding affinity.

Engineered analogs with sufficiently improved binding capacity or cross-reactivity can also be tested for immunogenicity in HLA-B7-transgenic mice, following for example, IFA immunization or lipopeptide immunization. Analogued peptides are additionally tested for the ability to stimulate a recall response using PBMC from HPV-infected patients.

Other analoguing strategies

Another form of peptide analoguing, unrelated to the anchor positions, involves the substitution of a cysteine with α -amino butyric acid. Due to its chemical nature, cysteine has the propensity to form disulfide bridges and sufficiently alter the peptide structurally so as to reduce binding capacity. Substitution of α -amino butyric acid for cysteine not only alleviates this problem, but has been shown to improve binding and crossbinding capabilities in some instances (*see, e.g.*, the review by Sette *et al.*, In: Persistent Viral Infections, Eds. R. Ahmed and I. Chen, John Wiley & Sons, England, 1999).

Thus, by the use of even single amino acid substitutions, the binding affinity and/or cross-reactivity of peptide ligands for HLA supertype molecules can be modulated.

Example 5. Identification of HPV-derived sequences with HLA-DR binding motifs

Peptide epitopes bearing an HLA class II supermotif or motif are identified as outlined below using methodology similar to that described in Examples 1-3.

Selection of HLA-DR-supermotif-bearing epitopes.

To identify HPV-derived, HLA class II HTL epitopes, the protein sequences from the same HPV antigens used for the identification of HLA Class I supermotif/motif sequences were analyzed for the presence of sequences bearing an HLA-DR-motif or supermotif. Specifically, 15-mer sequences were selected comprising a DR-supermotif, further comprising a 9-mer core, and three-residue N- and C-terminal flanking regions (15 amino acids total).

Protocols for predicting peptide binding to DR molecules have been developed (Southwood *et al.*, *J. Immunol.* 160:3363-3373, 1998). These protocols, specific for individual DR molecules, allow the scoring, and ranking, of 9-mer core

regions. Each protocol not only scores peptide sequences for the presence of DR-supermotif primary anchors (i.e., at position 1 and position 6) within a 9-mer core, but additionally evaluates sequences for the presence of secondary anchors. Using allele specific selection tables (see, *e.g.*, Southwood *et al.*, *ibid.*), it has been found that these protocols efficiently select peptide sequences with a high probability of binding a particular DR molecule. Additionally, it has been found that performing these protocols in tandem, specifically those for DR1, DR4w4, and DR7, can efficiently select DR cross-reactive peptides.

The HPV-derived peptides identified above are tested for their binding capacity for various common HLA-DR molecules. All peptides are initially tested for binding to the DR molecules in the primary panel: DR1, DR4w4, and DR7. Peptides binding at least 2 of these 3 DR molecules are then tested for binding to DR2w2 β 1, DR2w2 β 2, DR6w19, and DR9 molecules in secondary assays. Finally, peptides binding at least 2 of the 4 secondary panel DR molecules, and thus cumulatively at least 4 of 7 different DR molecules, are screened for binding to DR4w15, DR5w11, and DR8w2 molecules in tertiary assays. Peptides binding at least 7 of the 10 DR molecules comprising the primary, secondary, and tertiary screening assays are considered cross-reactive DR binders. HPV-derived peptides found to bind common HLA-DR alleles are of particular interest.

Selection of DR3 motif peptides

Because HLA-DR3 is an allele that is prevalent in Caucasian, Black, and Hispanic populations, DR3 binding capacity is an important criterion in the selection of HTL epitopes. However, data generated previously indicated that DR3 only rarely cross-reacts with other DR alleles (Sidney *et al.*, *J. Immunol.* 149:2634-2640, 1992; Geluk *et al.*, *J. Immunol.* 152:5742-5748, 1994; Southwood *et al.*, *J. Immunol.* 160:3363-3373, 1998). This is not entirely surprising in that the DR3 peptide-binding motif appears to be distinct from the specificity of most other DR alleles. For maximum efficiency in developing vaccine candidates it would be desirable for DR3 motifs to be clustered in proximity with DR supermotif regions. Thus, peptides shown to be candidates may also be assayed for their DR3 binding capacity. However, in view of the distinct binding specificity of the DR3 motif, peptides binding only to DR3 can also be considered as candidates for inclusion in a vaccine formulation.

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Where frequency data was not available at the level of DNA typing, correspondence to the serologically defined antigen frequencies was assumed. To obtain total potential supertype population coverage no linkage disequilibrium was assumed, and only alleles confirmed to belong to each of the superotypes were included (minimal estimates). Estimates of total potential coverage achieved by inter-loci combinations were made by adding to the A coverage the proportion of the non-A covered population that could be expected to be covered by the B alleles considered (e.g., $\text{total} = A + B \cdot (1 - A)$). Confirmed members of the A3-like supertype are A3, A11, A31, A*3301, and A*6801. Although the A3-like supertype may also include A34, A66, and A*7401, these alleles were not included in overall frequency calculations. Likewise, confirmed members of the A2-like supertype family are A*0201, A*0202, A*0203, A*0204, A*0205, A*0206, A*0207, A*6802, and A*6901. Finally, the B7-like supertype-confirmed alleles are: B7, B*3501-03, B51, B*5301, B*5401, B*5501-2, B*5601, B*6701, and B*7801 (potentially also B*1401, B*3504-06, B*4201, and B*5602).

Population coverage achieved by combining the A2-, A3- and B7-supertypes is approximately 86% in five major ethnic groups (see Table XXI). Coverage may be extended by including peptides bearing the A1 and A24 motifs. On average, A1 is present in 12% and A24 in 29% of the population across five different major ethnic groups (Caucasian, North American Black, Chinese, Japanese, and Hispanic). Together, these alleles are represented with an average frequency of 39% in these same ethnic populations. The total coverage across the major ethnicities when A1 and A24 are combined with the coverage of the A2-, A3- and B7-supertype alleles is >95%. An analagous approach can be used to estimate population coverage achieved with combinations of class II motif-bearing epitopes.

Immunogenicity studies in humans (e.g., Bertoni *et al.*, *J. Clin. Invest.* 100:503, 1997; Doolan *et al.*, *Immunity* 7:97, 1997; and Threlkeld *et al.*, *J. Immunol.* 159:1648, 1997) have shown that highly cross-reactive binding peptides are almost always recognized as epitopes. The use of highly cross-reactive binding peptides is an important selection criterion in identifying candidate epitopes for inclusion in a vaccine that is immunogenic in a diverse population.

With a sufficient number of epitopes (as disclosed herein and from the art), an average population coverage is predicted to be greater than 95% in each of five major ethnic populations. The game theory Monte Carlo simulation analysis, which is known in the art (see e.g., Osborne, M.J. and Rubinstein, A. "A course in game theory" MIT Press,

1994), can be used to estimate what percentage of the individuals in a population comprised of the Caucasian, North American Black, Japanese, Chinese, and Hispanic ethnic groups would recognize the vaccine epitopes described herein. A preferred percentage is 90%. A more preferred percentage is 95%.

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Example 8. CTL Recognition Of Endogenous Processed Antigens After Priming

This example determines that CTL induced by native or analogued peptide epitopes identified and selected as described in Examples 1-6 recognize endogenously synthesized, *i.e.*, native antigens.

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Effector cells isolated from transgenic mice that are immunized with peptide epitopes as in Example 3, for example HLA-A2 supermotif-bearing epitopes, are re-stimulated *in vitro* using peptide-coated stimulator cells. Six days later, effector cells are assayed for cytotoxicity and the cell lines that contain peptide-specific cytotoxic activity are further re-stimulated. An additional six days later, these cell lines are tested for cytotoxic activity on ^{51}Cr labeled Jurkat-A2.1/K^b target cells in the absence or presence of peptide, and also tested on ^{51}Cr labeled target cells bearing the endogenously synthesized antigen, *i.e.* cells that are stably transfected with HPV expression vectors.

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The result will demonstrate that CTL lines obtained from animals primed with peptide epitope recognize endogenously synthesized HPV antigen. The choice of transgenic mouse model to be used for such an analysis depends upon the epitope(s) that is being evaluated. In addition to HLA-A*0201/K^b transgenic mice, several other transgenic mouse models including mice with human A11, which may also be used to evaluate A3 epitopes, and B7 alleles have been characterized and others (*e.g.*, transgenic mice for HLA-A1 and A24) are being developed. HLA-DR1 and HLA-DR3 mouse models have also been developed, which may be used to evaluate HTL epitopes.

20

25

Example 9. Activity Of CTL-HTL Conjugated Epitopes In Transgenic Mice

This example illustrates the induction of CTLs and HTLs in transgenic mice by use of a tumor associated antigen CTL/HTL peptide conjugate whereby the vaccine composition comprises peptides to be administered to an HPV-infected patient. The peptide composition can comprise multiple CTL and/or HTL epitopes and further, can comprise epitopes selected from multiple HPV target antigens. The epitopes are identified using methodology as described in Examples 1-6 This analysis demonstrates the enhanced immunogenicity that can be achieved by inclusion of one or more HTL

30

epitopes in a vaccine composition. Such a peptide composition can comprise an HTL epitope conjugated to a preferred CTL epitope containing, for example, at least one CTL epitope that binds to multiple HLA family members at an affinity of 500 nM or less, or analogs of that epitope. The peptides may be lipidated, if desired.

5 Immunization procedures: Immunization of transgenic mice is performed as described (Alexander *et al.*, *J. Immunol.* 159:4753-4761, 1997). For example, A2/K^b mice, which are transgenic for the human HLA A2.1 allele and are useful for the assessment of the immunogenicity of HLA-A*0201 motif- or HLA-A2 supermotif-bearing epitopes, are primed subcutaneously (base of the tail) with a 0.1 ml of peptide in
10 Incomplete Freund's Adjuvant, or if the peptide composition is a lipidated CTL/HTL conjugate, in DMSO/saline or if the peptide composition is a polypeptide, in PBS or Incomplete Freund's Adjuvant. Seven days after priming, splenocytes obtained from these animals are restimulated with syngenic irradiated LPS-activated lymphoblasts coated with peptide.

15 Cell lines: Target cells for peptide-specific cytotoxicity assays are Jurkat cells transfected with the HLA-A2.1/K^b chimeric gene (*e.g.*, Vitiello *et al.*, *J. Exp. Med.* 173:1007, 1991)

In vitro CTL activation: One week after priming, spleen cells (30×10^6 cells/flask) are co-cultured at 37°C with syngeneic, irradiated (3000 rads), peptide coated
20 lymphoblasts (10×10^6 cells/flask) in 10 ml of culture medium/T25 flask. After six days, effector cells are harvested and assayed for cytotoxic activity.

 Assay for cytotoxic activity: Target cells (1.0 to 1.5×10^6) are incubated at 37°C in the presence of 200 μ l of ^{51}Cr . After 60 minutes, cells are washed three times and resuspended in R10 medium. Peptide is added where required at a concentration of 1
25 $\mu\text{g/ml}$. For the assay, 10^4 ^{51}Cr -labeled target cells are added to different concentrations of effector cells (final volume of 200 μ l) in U-bottom 96-well plates. After a 6 hour incubation period at 37°C, a 0.1 ml aliquot of supernatant is removed from each well and radioactivity is determined in a Micromedic automatic gamma counter. The percent specific lysis is determined by the formula: percent specific release = $100 \times (\text{experimental}$
30 $\text{release} - \text{spontaneous release}) / (\text{maximum release} - \text{spontaneous release})$. To facilitate comparison between separate CTL assays run under the same conditions, % ^{51}Cr release data is expressed as lytic units/ 10^6 cells. One lytic unit is arbitrarily defined as the number of effector cells required to achieve 30% lysis of 10,000 target cells in a 6 hour ^{51}Cr release assay. To obtain specific lytic units/ 10^6 , the lytic units/ 10^6 obtained in the

absence of peptide is subtracted from the lytic units/ 10^6 obtained in the presence of peptide. For example, if 30% ^{51}Cr release is obtained at the effector (E): target (T) ratio of 50:1 (i.e., 5×10^5 effector cells for 10,000 targets) in the absence of peptide and 5:1 (i.e., 5×10^4 effector cells for 10,000 targets) in the presence of peptide, the specific lytic units would be: $[(1/50,000)-(1/500,000)] \times 10^6 = 18 \text{ LU}$.

The results are analyzed to assess the magnitude of the CTL responses of animals injected with the immunogenic CTL/HTL conjugate vaccine preparation and are compared to the magnitude of the CTL response achieved using the CTL epitope as outlined in Example 3. Analyses similar to this may be performed to evaluate the immunogenicity of peptide conjugates containing multiple CTL epitopes and/or multiple HTL epitopes. In accordance with these procedures it is found that a CTL response is induced, and concomitantly that an HTL response is induced upon administration of such compositions.

15 Example 10. Selection of CTL and HTL epitopes for inclusion in an HPV-specific vaccine.

This example illustrates the procedure for the selection of peptide epitopes for vaccine compositions of the invention. The peptides in the composition can be in the form of a nucleic acid sequence, either single or one or more sequences (i.e., minigene) that encodes peptide(s), or can be single and/or polyepitopic peptides.

The following principles are utilized when selecting an array of epitopes for inclusion in a vaccine composition. Each of the following principles is balanced in order to make the selection.

Epitopes are selected which, upon administration, mimic immune responses that have been observed to be correlated with HPV clearance. The number of epitopes used depends on observations of patients who spontaneously clear HPV. For example, if it has been observed that patients who spontaneously clear HPV generate an immune response to at least 3 epitopes on at least one HPV antigen, then 3-4 epitopes should be included for HLA class I. A similar rationale is used to determine HLA class II epitopes.

When selecting an array of HPV epitopes, it is preferred that at least some of the epitopes are derived from early and late proteins. The early proteins of HPV are expressed when the virus is replicating, either following acute or dormant infection.

Therefore, it is particularly preferred to use epitopes from early stage proteins to alleviate disease manifestations at the earliest stage possible.

Epitopes are often selected that have a binding affinity of an IC_{50} of 500 nM or less for an HLA class I molecule, or for class II, an IC_{50} of 1000 nM or less.

5 Sufficient supermotif bearing peptides, or a sufficient array of allele-specific motif bearing peptides, are selected to give broad population coverage. For example, epitopes are selected to provide at least 80% population coverage. A Monte Carlo analysis, a statistical evaluation known in the art, can be employed to assess breadth, or redundancy, of population coverage.

10 When creating a polypeptidic compositions, *e.g.* a minigene, it is typically desirable to generate the smallest peptide possible that encompasses the epitopes of interest. The principles employed are similar, if not the same, as those employed when selecting a peptide comprising nested epitopes.

15 In cases where the sequences of multiple variants of the same target protein are available, potential peptide epitopes can also be selected on the basis of their conservancy. For example, a criterion for conservancy may define that the entire sequence of an HLA class I binding peptide or the entire 9-mer core of a class II binding peptide be conserved in a designated percentage of the sequences evaluated for a specific protein antigen.

20 A vaccine composition comprised of selected peptides, when administered, is safe, efficacious, and elicits an immune response similar in magnitude to an immune response that controls or clears an acute HPV infection.

Example 11. Construction of Minigene Multi-Epitope DNA Plasmids

25 This example provides general guidance for the construction of a minigene expression plasmid. Minigene plasmids may, of course, contain various configurations of CTL and/or HTL epitopes or epitope analogs as described herein. Examples of the construction and evaluation of expression plasmids are described, for example, in co-pending U.S.S.N. 09/311,784 filed 5/13/99.

30 A minigene expression plasmid typically includes multiple CTL and HTL peptide epitopes. In the present example, HLA-A2, -A3, -B7 supermotif-bearing peptide epitopes and HLA-A1 and -A24 motif-bearing peptide epitopes are used in conjunction with DR supermotif-bearing epitopes and/or DR3 epitopes. HLA class I supermotif or motif-bearing peptide epitopes derived from multiple HPV antigens, preferably including

both early and late phase antigens, are selected such that multiple supermotifs/motifs are represented to ensure broad population coverage. Similarly, HLA class II epitopes are selected from multiple HPV antigens to provide broad population coverage, *i.e.* both HLA DR-1-4-7 supermotif-bearing epitopes and HLA DR-3 motif-bearing epitopes are selected for inclusion in the minigene construct. The selected CTL and HTL epitopes are then incorporated into a minigene for expression in an expression vector.

Such a construct may additionally include sequences that direct the HTL epitopes to the endoplasmic reticulum. For example, the Ii protein may be fused to one or more HTL epitopes as described in co-pending application U.S.S.N. 09/311,784 filed 5/13/99, wherein the CLIP sequence of the Ii protein is removed and replaced with an HLA class II epitope sequence so that HLA class II epitope is directed to the endoplasmic reticulum, where the epitope binds to an HLA class II molecules.

This example illustrates the methods to be used for construction of a minigene-bearing expression plasmid. Other expression vectors that may be used for minigene compositions are available and known to those of skill in the art.

The minigene DNA plasmid of this example contains a consensus Kozak sequence and a consensus murine kappa Ig-light chain signal sequence followed by CTL and/or HTL epitopes selected in accordance with principles disclosed herein. The sequence encodes an open reading frame fused to the Myc and His antibody epitope tag coded for by the pcDNA 3.1 Myc-His vector.

Overlapping oligonucleotides that can, for example, average about 70 nucleotides in length with 15 nucleotide overlaps, are synthesized and HPLC-purified. The oligonucleotides encode the selected peptide epitopes as well as appropriate linker nucleotides, Kozak sequence, and signal sequence. The final multiepitope minigene is assembled by extending the overlapping oligonucleotides in three sets of reactions using PCR. A Perkin/Elmer 9600 PCR machine is used and a total of 30 cycles are performed using the following conditions: 95°C for 15 sec, annealing temperature (5° below the lowest calculated T_m of each primer pair) for 30 sec, and 72°C for 1 min.

For example, a minigene can be prepared as follows. For a first PCR reaction, 5 µg of each of two oligonucleotides are annealed and extended: In an example using eight oligonucleotides, *i.e.*, four pairs of primers, oligonucleotides 1+2, 3+4, 5+6, and 7+8 are combined in 100 µl reactions containing *Pfu* polymerase buffer (1x= 10 mM KCL, 10 mM (NH₄)₂SO₄, 20 mM Tris-chloride, pH 8.75, 2 mM MgSO₄, 0.1% Triton X-

100, 100 µg/ml BSA), 0.25 mM each dNTP, and 2.5 U of *Pfu* polymerase. The full-length dimer products are gel-purified, and two reactions containing the product of 1+2 and 3+4, and the product of 5+6 and 7+8 are mixed, annealed, and extended for 10 cycles. Half of the two reactions are then mixed, and 5 cycles of annealing and extension
 5 carried out before flanking primers are added to amplify the full length product. The full-length product is gel-purified and cloned into pCR-blunt (Invitrogen) and individual clones are screened by sequencing.

Example 12. The plasmid construct and the degree to which it induces immunogenicity.

10 The degree to which a plasmid construct, for example a plasmid constructed in accordance with Example 11, is able to induce immunogenicity can be evaluated *in vitro* by testing for epitope presentation by APC following transduction or transfection of the APC with an epitope-expressing nucleic acid construct. Such a study determines “antigenicity” and allows the use of human APC. The assay determines the
 15 ability of the epitope to be presented by the APC in a context that is recognized by a T cell by quantifying the density of epitope-HLA class I complexes on the cell surface. Quantitation can be performed by directly measuring the amount of peptide eluted from the APC (*see, e.g.,* Sijts *et al.*, *J. Immunol.* 156:683-692, 1996; Demotz *et al.*, *Nature* 342:682-684, 1989); or the number of peptide-HLA class I complexes can be estimated
 20 by measuring the amount of lysis or lymphokine release induced by infected or transfected target cells, and then determining the concentration of peptide necessary to obtained equivalent levels of lysis or lymphokine release (*see, e.g.,* Kageyama *et al.*, *J. Immunol.* 154:567-576, 1995).

Alternatively, immunogenicity can be evaluated through *in vivo* injections
 25 into mice and subsequent *in vitro* assessment of CTL and HTL activity, which are analysed using cytotoxicity and proliferation assays, respectively, as detailed *e.g.,* in copending U.S.S.N. 09/311,784 filed 5/13/99 and Alexander *et al.*, *Immunity* 1:751-761, 1994.

For example, to assess the capacity of a DNA minigene construct (*e.g.,* a
 30 pMin minigene construct generated as described in U.S.S.N. 09/311,784) containing at least one HLA-A2 supermotif peptide to induce CTLs *in vivo*, HLA-A2.1/K^b transgenic mice, for example, are immunized intramuscularly with 100 µg of naked cDNA. As a means of comparing the level of CTLs induced by cDNA immunization, a control group

of animals is also immunized with an actual peptide composition that comprises multiple epitopes synthesized as a single polypeptide as they would be encoded by the minigene.

Splenocytes from immunized animals are stimulated twice with each of the respective compositions (peptide epitopes encoded in the minigene or the polyepitopic peptide), then assayed for peptide-specific cytotoxic activity in a ^{51}Cr release assay. The results indicate the magnitude of the CTL response directed against the A2-restricted epitope, thus indicating the *in vivo* immunogenicity of the minigene vaccine and polyepitopic vaccine. It is, therefore, found that the minigene elicits immune responses directed toward the HLA-A2 supermotif peptide epitopes as does the polyepitopic peptide vaccine. A similar analysis is also performed using other HLA-A3 and HLA-B7 transgenic mouse models to assess CTL induction by HLA-A3 and HLA-B7 motif or supermotif epitopes.

To assess the capacity of a class II epitope encoding minigene to induce HTLs *in vivo*, DR transgenic mice, or for those epitope that cross react with the appropriate mouse MHC molecule, I-A^b-restricted mice, for example, are immunized intramuscularly with 100 µg of plasmid DNA. As a means of comparing the level of HTLs induced by DNA immunization, a group of control animals is also immunized with an actual peptide composition emulsified in complete Freund's adjuvant. CD4⁺ T cells, *i.e.* HTLs, are purified from splenocytes of immunized animals and stimulated with each of the respective compositions (peptides encoded in the minigene). The HTL response is measured using a ^3H -thymidine incorporation proliferation assay, (*see, e.g.*, Alexander et al. *Immunity* 1:751-761, 1994). The results indicate the magnitude of the HTL response, thus demonstrating the *in vivo* immunogenicity of the minigene.

DNA minigenes, constructed as described in Example 11, may also be evaluated as a vaccine in combination with a boosting agent using a prime boost protocol. The boosting agent can consist of recombinant protein (*e.g.*, Barnett *et al.*, *Aids Res. and Human Retroviruses* 14, Supplement 3:S299-S309, 1998) or recombinant vaccinia, for example, expressing a minigene or DNA encoding the complete protein of interest (*see, e.g.*, Hanke *et al.*, *Vaccine* 16:439-445, 1998; Sedegah *et al.*, *Proc. Natl. Acad. Sci USA* 95:7648-53, 1998; Hanke and McMichael, *Immunol. Letters* 66:177-181, 1999; and Robinson *et al.*, *Nature Med.* 5:526-34, 1999).

For example, the efficacy of the DNA minigene used in a prime boost protocol is initially evaluated in transgenic mice. In this example, A2.1/K^b transgenic

mice are immunized IM with 100 µg of a DNA minigene encoding the immunogenic peptides including at least one HLA-A2 supermotif-bearing peptide. After an incubation period (ranging from 3-9 weeks), the mice are boosted IP with 10^7 pfu/mouse of a recombinant vaccinia virus expressing the same sequence encoded by the DNA minigene.

- 5 Control mice are immunized with 100 µg of DNA or recombinant vaccinia without the minigene sequence, or with DNA encoding the minigene, but without the vaccinia boost. After an additional incubation period of two weeks, splenocytes from the mice are immediately assayed for peptide-specific activity in an ELISPOT assay. Additionally, splenocytes are stimulated *in vitro* with the A2-restricted peptide epitopes encoded in the minigene and recombinant vaccinia, then assayed for peptide-specific activity in an IFN-γ ELISA.

- It is found that the minigene utilized in a prime-boost protocol elicits greater immune responses toward the HLA-A2 supermotif peptides than with DNA alone. Such an analysis can also be performed using HLA-A11 or HLA-B7 transgenic mouse models to assess CTL induction by HLA-A3 or HLA-B7 motif or supermotif epitopes.

The use of prime boost protocols in humans is described in Example 20.

Example 13. Peptide Composition for Prophylactic Uses

- Vaccine compositions of the present invention can be used to prevent HPV infection in persons who are at risk for such infection. For example, a polyepitopic peptide epitope composition (or a nucleic acid comprising the same) containing multiple CTL and HTL epitopes such as those selected in Examples 9 and/or 10, which are also selected to target greater than 80% of the population, is administered to individuals at risk for HPV infection.

- For example, a peptide-based composition can be provided as a single polypeptide that encompasses multiple epitopes. The vaccine is typically administered in a physiological solution that comprises an adjuvant, such as Incomplete Freund's Adjuvant. The dose of peptide for the initial immunization is from about 1 to about 50,000 µg, generally 100-5,000 µg, for a 70 kg patient. The initial administration of vaccine is followed by booster dosages at 4 weeks followed by evaluation of the magnitude of the immune response in the patient, by techniques that determine the presence of epitope-specific CTL populations in a PBMC sample. Additional booster

doses are administered as required. The composition is found to be both safe and efficacious as a prophylaxis against HPV infection.

Alternatively, a composition typically comprising transfecting agents can be used for the administration of a nucleic acid-based vaccine in accordance with
5 methodologies known in the art and disclosed herein.

Example 14. Polyepitopic Vaccine Compositions Derived from Native HPV Sequences

A native HPV polyprotein sequence is screened, preferably using computer algorithms defined for each class I and/or class II supermotif or motif, to
10 identify “relatively short” regions of the polyprotein that comprise multiple epitopes and is preferably less in length than an entire native antigen. This relatively short sequence that contains multiple distinct, even overlapping, epitopes is selected and used to generate a minigene construct. The construct is engineered to express the peptide, which corresponds to the native protein sequence. The “relatively short” peptide is generally
15 less than 250 amino acids in length, often less than 100 amino acids in length, preferably less than 75 amino acids in length, and more preferably less than 50 amino acids in length. The protein sequence of the vaccine composition is selected because it has maximal number of epitopes contained within the sequence, *i.e.*, it has a high concentration of epitopes. As noted herein, epitope motifs may be nested or overlapping
20 (*i.e.*, frame shifted relative to one another). For example, with *f* overlapping epitopes, two 9-mer epitopes and one 10-mer epitope can be present in a 10 amino acid peptide. Such a vaccine composition is administered for therapeutic or prophylactic purposes.

The vaccine composition will include, for example, three CTL epitopes from at least one HPV target antigen and at least one HTL epitope. This polyepitopic
25 native sequence is administered either as a peptide or as a nucleic acid sequence which encodes the peptide. Alternatively, an analog can be made of this native sequence, whereby one or more of the epitopes comprise substitutions that alter the cross-reactivity and/or binding affinity properties of the polyepitopic peptide.

The embodiment of this example provides for the possibility that an as yet
30 undiscovered aspect of immune system processing will apply to the native nested sequence and thereby facilitate the production of therapeutic or prophylactic immune response-inducing vaccine compositions. Additionally such an embodiment provides for the possibility of motif-bearing epitopes for an HLA makeup that is presently unknown. Furthermore, this embodiment (absent analogs) directs the immune response to multiple

COOH-terminal addition of a sequence containing a BirA enzymatic biotinylation site. The heavy chain, β 2-microglobulin, and peptide are refolded by dilution. The 45-kD refolded product is isolated by fast protein liquid chromatography and then biotinylated by BirA in the presence of biotin (Sigma, St. Louis, Missouri), adenosine 5'triphosphate and magnesium. Streptavidin-phycoerythrin conjugate is added in a 1:4 molar ratio, and the tetrameric product is concentrated to 1 mg/ml. The resulting product is referred to as tetramer-phycoerythrin.

For the analysis of patient blood samples, approximately one million PBMCs are centrifuged at 300g for 5 minutes and resuspended in 50 μ l of cold phosphate-buffered saline. Tri-color analysis is performed with the tetramer-phycoerythrin, along with anti-CD8-Tricolor, and anti-CD38. The PBMCs are incubated with tetramer and antibodies on ice for 30 to 60 min and then washed twice before formaldehyde fixation. Gates are applied to contain >99.98% of control samples. Controls for the tetramers include both A*0201-negative individuals and A*0201-positive uninfected donors. The percentage of cells stained with the tetramer is then determined by flow cytometry. The results indicate the number of cells in the PBMC sample that contain epitope-restricted CTLs, thereby readily indicating the extent of immune response to the HPV epitope, and thus the stage of infection with HPV, the status of exposure to HPV, or exposure to a vaccine that elicits a protective or therapeutic response.

Example 17. Use of Peptide Epitopes to Evaluate Recall Responses

The peptide epitopes of the invention are used as reagents to evaluate T cell responses, such as acute or recall responses, in patients. Such an analysis may be performed on patients who have recovered from infection, who are chronically infected with HPV, or who have been vaccinated with an HPV vaccine.

For example, the class I restricted CTL response of persons who have been vaccinated may be analyzed. The vaccine may be any HPV vaccine. PBMC are collected from vaccinated individuals and HLA typed. Appropriate peptide epitopes of the invention that, optimally, bear supermotifs to provide cross-reactivity with multiple HLA supertype family members, are then used for analysis of samples derived from individuals who bear that HLA type.

PBMC from vaccinated individuals are separated on Ficoll-Histopaque density gradients (Sigma Chemical Co., St. Louis, MO), washed three times in HBSS

(GIBCO Laboratories), resuspended in RPMI-1640 (GIBCO Laboratories) supplemented with L-glutamine (2mM), penicillin (50U/ml), streptomycin (50 µg/ml), and Hepes (10mM) containing 10% heat-inactivated human AB serum (complete RPMI) and plated using microculture formats. A synthetic peptide comprising an epitope of the invention is added at 10 µg/ml to each well and HBV core 128-140 epitope is added at 1 µg/ml to each well as a source of T cell help during the first week of stimulation.

In the microculture format, 4×10^5 PBMC are stimulated with peptide in 8 replicate cultures in 96-well round bottom plate in 100 µl/well of complete RPMI. On days 3 and 10, 100 ml of complete RPMI and 20 U/ml final concentration of rIL-2 are added to each well. On day 7 the cultures are transferred into a 96-well flat-bottom plate and restimulated with peptide, rIL-2 and 10^5 irradiated (3,000 rad) autologous feeder cells. The cultures are tested for cytotoxic activity on day 14. A positive CTL response requires two or more of the eight replicate cultures to display greater than 10% specific ^{51}Cr release, based on comparison with uninfected control subjects as previously described (Rehermann, *et al.*, *Nature Med.* 2:1104,1108, 1996; Rehermann *et al.*, *J. Clin. Invest.* 97:1655-1665, 1996; and Rehermann *et al.* *J. Clin. Invest.* 98:1432-1440, 1996).

Target cell lines are autologous and allogeneic EBV-transformed B-LCL that are either purchased from the American Society for Histocompatibility and Immunogenetics (ASHI, Boston, MA) or established from the pool of patients as described (Guilhot, *et al.* *J. Virol.* 66:2670-2678, 1992).

Cytotoxicity assays are performed in the following manner. Target cells consist of either allogeneic HLA-matched or autologous EBV-transformed B lymphoblastoid cell line that are incubated overnight with the synthetic peptide epitope of the invention at 10 µM, and labeled with 100 µCi of ^{51}Cr (Amersham Corp., Arlington Heights, IL) for 1 hour after which they are washed four times with HBSS.

Cytolytic activity is determined in a standard 4-h, split well ^{51}Cr release assay using U-bottomed 96 well plates containing 3,000 targets/well. Stimulated PBMC are tested at effector/target (E/T) ratios of 20-50:1 on day 14. Percent cytotoxicity is determined from the formula: $100 \times [(\text{experimental release} - \text{spontaneous release}) / (\text{maximum release} - \text{spontaneous release})]$. Maximum release is determined by lysis of targets by detergent (2% Triton X-100; Sigma Chemical Co., St. Louis, MO). Spontaneous release is <25% of maximum release for all experiments.

The results of such an analysis indicate the extent to which HLA-restricted CTL populations have been stimulated by previous exposure to HPV or an HPV vaccine.

The class II restricted HTL responses may also be analyzed. Purified PBMC are cultured in a 96-well flat bottom plate at a density of 1.5×10^5 cells/well and are stimulated with 10 $\mu\text{g/ml}$ synthetic peptide, whole antigen, or PHA. Cells are routinely plated in replicates of 4-6 wells for each condition. After seven days of culture, the medium is removed and replaced with fresh medium containing 10U/ml IL-2. Two days later, 1 μCi ^3H -thymidine is added to each well and incubation is continued for an additional 18 hours. Cellular DNA is then harvested on glass fiber mats and analyzed for ^3H -thymidine incorporation. Antigen-specific T cell proliferation is calculated as the ratio of ^3H -thymidine incorporation in the presence of antigen divided by the ^3H -thymidine incorporation in the absence of antigen.

Example 18. Induction Of Specific CTL Response In Humans

A human clinical trial for an immunogenic composition comprising CTL and HTL epitopes of the invention is set up as an IND Phase I, dose escalation study and carried out as a randomized, double-blind, placebo-controlled trial. Such a trial is designed, for example, as follows:

A total of about 27 individuals are enrolled and divided into 3 groups:

Group I: 3 subjects are injected with placebo and 6 subjects are injected with 5 μg of peptide composition;

Group II: 3 subjects are injected with placebo and 6 subjects are injected with 50 μg peptide composition;

Group III: 3 subjects are injected with placebo and 6 subjects are injected with 500 μg of peptide composition.

After 4 weeks following the first injection, all subjects receive a booster inoculation at the same dosage.

The endpoints measured in this study relate to the safety and tolerability of the peptide composition as well as its immunogenicity. Cellular immune responses to the peptide composition are an index of the intrinsic activity of this the peptide composition, and can therefore be viewed as a measure of biological efficacy. The following summarize the clinical and laboratory data that relate to safety and efficacy endpoints.

Safety: The incidence of adverse events is monitored in the placebo and drug treatment group and assessed in terms of degree and reversibility.

Evaluation of Vaccine Efficacy: For evaluation of vaccine efficacy, subjects are bled before and after injection. Peripheral blood mononuclear cells are isolated from fresh heparinized blood by Ficoll-Hypaque density gradient centrifugation, aliquoted in freezing media and stored frozen. Samples are assayed for CTL and HTL activity.

The vaccine is found to be both safe and efficacious.

Example 19. Phase II Trials In Patients Infected With HPV

Phase II trials are performed to study the effect of administering the CTL-HTL peptide compositions to patients having cancer associated with HPV infection. The main objectives of the trials are to determine an effective dose and regimen for inducing CTLs in HPV-infected patients with cancer, to establish the safety of inducing a CTL and HTL response in these patients, and to see to what extent activation of CTLs improves the clinical picture of chronically infected HPV patients, as manifested by a reduction in viral load, *e.g.*, the reduction and/or shrinking of lesions. Such a study is designed, for example, as follows:

The studies are performed in multiple centers. The trial design is an open-label, uncontrolled, dose escalation protocol wherein the peptide composition is administered as a single dose followed six weeks later by a single booster shot of the same dose. The dosages are 50, 500 and 5,000 micrograms per injection. Drug-associated adverse effects (severity and reversibility) are recorded.

There are three patient groupings. The first group is injected with 50 micrograms of the peptide composition and the second and third groups with 500 and 5,000 micrograms of peptide composition, respectively. The patients within each group range in age from 21-65 and represent diverse ethnic backgrounds. All of them are infected with HPV and are HIV, HCV, HBV and delta hepatitis virus (HDV) negative, but are positive for HPV DNA as monitored by PCR.

Clinical manifestations or antigen-specific T-cell responses are monitored to assess the effects of administering the peptide compositions. The vaccine composition is found to be both safe and efficacious in the treatment of HPV infection.

Example 20. Induction of CTL Responses Using a Prime Boost Protocol

A prime boost protocol similar in its underlying principle to that used to evaluate the efficacy of a DNA vaccine in transgenic mice, such as described in Example

12, can also be used for the administration of the vaccine to humans. Such a vaccine regimen can include an initial administration of, for example, naked DNA followed by a boost using recombinant virus encoding the vaccine, or recombinant protein/polypeptide or a peptide mixture administered in an adjuvant.

5 For example, the initial immunization may be performed using an expression vector, such as that constructed in Example 11, in the form of naked nucleic acid administered IM (or SC or ID) in the amounts of 0.5-5 mg at multiple sites. The nucleic acid (0.1 to 1000 μ g) can also be administered using a gene gun. Following an incubation period of 3-4 weeks, a booster dose is then administered. The booster can be
10 recombinant fowlpox virus administered at a dose of $5 \cdot 10^7$ to $5 \cdot 10^9$ pfu. An alternative recombinant virus, such as an MVA, canarypox, adenovirus, or adeno-associated virus, can also be used for the booster, or the polyepitopic protein or a mixture of the peptides can be administered. For evaluation of vaccine efficacy, patient blood samples will be obtained before immunization as well as at intervals following administration of the
15 initial vaccine and booster doses of the vaccine. Peripheral blood mononuclear cells are isolated from fresh heparinized blood by Ficoll-Hypaque density gradient centrifugation, aliquoted in freezing media and stored frozen. Samples are assayed for CTL and HTL activity.

Analysis of the results indicates that a magnitude of response sufficient to
20 achieve protective immunity against HPV is generated.

Example 21. Administration of Vaccine Compositions Using Dendritic Cells (DC)

Vaccines comprising peptide epitopes of the invention can be administered using APCs, or "professional" APCs such as DC. In this example, the peptide-pulsed DC
25 are administered to a patient to stimulate a CTL response *in vivo*. In this method, dendritic cells are isolated, expanded, and pulsed with a vaccine comprising peptide CTL and HTL epitopes of the invention. The dendritic cells are infused back into the patient to elicit CTL and HTL responses *in vivo*. The induced CTL and HTL then destroy or facilitate destruction of the specific target cells that bear the proteins from which the
30 epitopes in the vaccine are derived.

For example, a cocktail of epitope-bearing peptides is administered *ex vivo* to PBMC, or isolated DC therefrom. A pharmaceutical to facilitate harvesting of DC can be used, such as Progenipointin™ (Monsanto, St. Louis, MO) or GM-CSF/IL-4. After

pulsing the DC with peptides and prior to reinfusion into patients, the DC are washed to remove unbound peptides.

As appreciated clinically, and readily determined by one of skill based on clinical outcomes, the number of DC reinfused into the patient can vary (*see, e.g., Nature Med.* 4:328, 1998; *Nature Med.* 2:52, 1996 and *Prostate* 32:272, 1997). Although 2-50 x 10⁶ DC per patient are typically administered, larger number of DC, such as 10⁷ or 10⁸ can also be provided. Such cell populations typically contain between 50-90% DC.

In some embodiments, peptide-loaded PBMC are injected into patients without purification of the DC. For example, PBMC containing DC generated after treatment with an agent such as Progenipoiectin™ are injected into patients without purification of the DC. The total number of PBMC that are administered often ranges from 10⁸ to 10¹⁰. Generally, the cell doses injected into patients is based on the percentage of DC in the blood of each patient, as determined, for example, by immunofluorescence analysis with specific anti-DC antibodies. Thus, for example, if Progenipoiectin™ mobilizes 2% DC in the peripheral blood of a given patient, and that patient is to receive 5 x 10⁶ DC, then the patient will be injected with a total of 2.5 x 10⁸ peptide-loaded PBMC. The percent DC mobilized by an agent such as Progenipoiectin™ is typically estimated to be between 2-10%, but can vary as appreciated by one of skill in the art.

Ex vivo activation of CTL/HTL responses

Alternatively, *ex vivo* CTL or HTL responses to HPV antigens can be induced by incubating in tissue culture the patient's, or genetically compatible, CTL or HTL precursor cells together with a source of APC, such as DC, and the appropriate immunogenic peptides. After an appropriate incubation time (typically about 7-28 days), in which the precursor cells are activated and expanded into effector cells, the cells are infused back into the patient, where they will destroy (CTL) or facilitate destruction (HTL) of their specific target cells, *i.e.*, tumor cells.

Example 22. Alternative Method of Identifying Motif-Bearing Peptides

Another method of identifying motif-bearing peptides is to elute them from cells bearing defined MHC molecules. For example, EBV transformed B cell lines used for tissue typing have been extensively characterized to determine which HLA

molecules they express. In certain cases these cells express only a single type of HLA molecule. These cells can be infected with a pathogenic organism or transfected with nucleic acids that express the antigen of interest, *e.g.* HPV regulatory or structural proteins. Peptides produced by endogenous antigen processing of peptides produced
5 consequent to infection (or as a result of transfection) will then bind to HLA molecules within the cell and be transported and displayed on the cell surface. Peptides are then eluted from the HLA molecules by exposure to mild acid conditions and their amino acid sequence determined, *e.g.*, by mass spectral analysis (*e.g.*, Kubo *et al.*, *J. Immunol.* 152:3913, 1994). Because the majority of peptides that bind a particular HLA molecule
10 are motif-bearing, this is an alternative modality for obtaining the motif-bearing peptides correlated with the particular HLA molecule expressed on the cell.

Alternatively, cell lines that do not express endogenous HLA molecules can be transfected with an expression construct encoding a single HLA allele. These cells can then be used as described, *i.e.*, they can be infected with a pathogen or transfected
15 with nucleic acid encoding an antigen of interest to isolate peptides corresponding to the pathogen or antigen of interest that have been presented on the cell surface. Peptides obtained from such an analysis will bear motif(s) that correspond to binding to the single HLA allele that is expressed in the cell.

As appreciated by one in the art, one can perform a similar analysis on a
20 cell bearing more than one HLA allele and subsequently determine peptides specific for each HLA allele expressed. Moreover, one of skill would also recognize that means other than infection or transfection, such as loading with a protein antigen, can be used to provide a source of antigen to the cell.

25 The above examples are provided to illustrate the invention but not to limit its scope. For example, the human terminology for the Major Histocompatibility Complex, namely HLA, is used throughout this document. It is to be appreciated that these principles can be extended to other species as well. Thus, other variants of the invention will be readily apparent to one of ordinary skill in the art and are encompassed
30 by the appended claims. All publications, patents, and patent application cited herein are hereby incorporated by reference for all purposes.

TABLE I

SUPERMOTIFS	POSITION	POSITION	POSITION
	2 (Primary Anchor)	3 (Primary Anchor)	C Terminus (Primary Anchor)
A1	T, I, L, V, M, S		F, W, Y
A2	L, I, V, M, A, T, Q		I, V, M, A, T, L
A3	V, S, M, A, T, L, I		R, K
A24	Y, F, W, I, V, L, M, T		F, I, Y, W, L, M
B7	P		V, I, L, F, M, W, Y, A
B27	R, H, K		F, Y, L, W, M, I, V, A
B44	E, D		F, W, L, I, M, V, A
B58	A, T, S		F, W, Y, L, I, V, M, A
B62	Q, L, I, V, M, P		F, W, Y, M, I, V, L, A
MOTIFS			
A1	T, S, M		Y
A1		D, E, A, S	Y
A2.1	L, M, V, Q, I, A, T		V, L, I, M, A, T
A3	L, M, V, I, S, A, T, F, C, G, D		K, Y, R, H, F, A
A11	V, T, M, L, I, S, A, G, N, C, D, F		K, R, Y, H
A24	Y, F, W, M		F, L, I, W
A*3101	M, V, T, A, L, I, S		R, K
A*3301	M, V, A, L, F, I, S, T		R, K
A*6801	A, V, T, M, S, L, I		R, K
B*0702	P		L, M, F, W, Y, A, I, V
B*3501	P		L, M, F, W, Y, I, V, A
B51	P		L, I, V, F, W, Y, A, M
B*5301	P		I, M, F, W, Y, A, L, V
B*5401	P		A, T, I, V, L, M, F, W, Y

Bolded residues are preferred, italicized residues are less preferred: A peptide is considered motif-bearing if it has primary anchors at each primary anchor position for a motif or supermotif as specified in the above table.

TABLE Ia

SUPERMOTIFS	POSITION	POSITION	POSITION
	2 (Primary Anchor)	3 (Primary Anchor)	C Terminus (Primary Anchor)
A1	T, I, L, V, M, S		F, W, Y
A2	V, Q, A, T		I, V, L, M, A, T
A3	V, S, M, A, T, L, I		R, K
A24	Y, F, W, I, V, L, M, T		F, I, Y, W, L, M
B7	P		V, I, L, F, M, W, Y, A
B27	R, H, K		F, Y, L, W, M, I, V, A
B58	A, T, S		F, W, Y, L, I, V, M, A
B62	Q, L, I, V, M, P		F, W, Y, M, I, V, L, A
MOTIFS			
A1	T, S, M		Y
A1		D, E, A, S	Y
A2.1	V, Q, A, T*		V, L, I, M, A, T
A3.2	L, M, V, I, S, A, T, F, C, G, D		K, Y, R, H, F, A
A11	V, T, M, L, I, S, A, G, N, C, D, F		K, R, H, Y
A24	Y, F, W		F, L, I, W

*If 2 is V, or Q, the C-term is not L

Bolded residues are preferred, italicized residues are less preferred: A peptide is considered motif-bearing if it has primary anchors at each primary anchor position for a motif or supermotif as specified in the above table.

TABLE II

		POSITION							C-terminus
		1	2	3	4	5	6	7	8
<u>SUPERMOTIFS</u>									
A1			<u>1° Anchor</u> T,I,L,V,M,S						<u>1° Anchor</u> F,W,Y
A2			<u>1° Anchor</u> L,I,V,M,A, T,Q						<u>1° Anchor</u> L,I,V,M,A,T
A3	preferred		<u>1° Anchor</u> V,S,M,A,T, L,I	Y,F,W, (4/5)		Y,F,W, (3/5)	Y,F,W, (4/5)	P, (4/5)	<u>1° Anchor</u> R,K
	deleterious	D,E (3/5); P, (5/5)		D,E, (4/5)					
A24			<u>1° Anchor</u> Y,F,W,I,V, L,M,T						<u>1° Anchor</u> F,I,Y,W,L,M
B7	preferred	F,W,Y (5/5) L,I,V,M, (3/5)	<u>1° Anchor</u> P	F,W,Y (4/5)		F,W,Y, (3/5)			<u>1° Anchor</u> V,I,L,F,M,W,Y,A
	deleterious	D,E (3/5); P(5/5); G(4/5); A(3/5); Q,N, (3/5)				D,E, (3/5)	G, (4/5)	Q,N, (4/5)	D,E, (4/5)
B27			<u>1° Anchor</u> R,H,K						<u>1° Anchor</u> F,Y,L,W,M,V,A
B44			<u>1° Anchor</u> E,D						<u>1° Anchor</u> F,W,Y,L,I,M,V,A
B58			<u>1° Anchor</u> A,T,S						<u>1° Anchor</u> F,W,Y,L,I,V,M,A
B62			<u>1° Anchor</u> Q,L,I,V,M, P						<u>1° Anchor</u> F,W,Y,M,I,V,L,A

POSITION

1 2 3 4 5 6 7 8 C-terminus

MOTIFS

A1 preferred G,F,Y,W, 1°Anchor D,E,A, Y,F,W, P, D,E,Q,N, Y,F,W, 1°Anchor
9-mer S,T,M,

deleterious D,E, R,H,K,L,I,V A, G, A,

A1 preferred G,R,H,K A,S,T,C,L,I 1°Anchor G,S,T,C, A,S,T,C, L,I,V,M, D,E, 1°Anchor
9-mer V,M, D,E,A,S

deleterious A R,H,K,D,E, D,E, P,Q,N, R,H,K, P,G, G,P,

POSITION

	1	2	3	4	5	6	7	8	9 or C-terminus	C-terminus
A1 preferred 10-mer	Y,F,W,	<u>1°Anchor</u> S,T,M	D,E,A,Q,N,	A,	Y,F,W,Q,N,		P,A,S,T,C,	G,D,E,	P,	<u>1°Anchor</u> Y
deleterious	G,P,		R,H,K,G,L,I V,M,	D,E,	R,H,K,	Q,N,A	R,H,K,Y,F, W,	R,H,K,	A	
A1 preferred 10-mer	Y,F,W,	S,T,C,L,I,V M,	<u>1°Anchor</u> D,E,A,S	A,	Y,F,W,		P,G,	G,	Y,F,W,	<u>1°Anchor</u> Y
deleterious	R,H,K,	R,H,K,D,E, P,Y,F,W,			P,	G,		P,R,H,K,	Q,N,	
A2.1 preferred 9-mer	Y,F,W,	<u>1°Anchor</u> L,M,I,V,Q, A,T	Y,F,W,	S,T,C,	Y,F,W,		A,	P	<u>1°Anchor</u> V,L,I,M,A,T	
deleterious	D,E,P,		D,E,R,K,H			R,K,H	D,E,R,K,H			
A2.1 preferred 10-mer	A,Y,F,W,	<u>1°Anchor</u> L,M,I,V,Q, A,T	L,V,I,M,	G,		G,		F,Y,W,L, V,I,M,		<u>1°Anchor</u> V,L,I,M,A,T
deleterious	D,E,P,		D,E,	R,K,H,A,	P,		R,K,H,	D,E,R,K, H,	R,K,H,	

POSITION

	1	2	3	4	5	6	7	8	9 or C-terminus
A3 preferred	R,H,K,	<u>1°Anchor</u> L,M,V,I,S, A,T,F,C,G D	Y,F,W,	P,R,H,K,Y, F,W,	A,	Y,F,W,		P,	<u>1°Anchor</u> K,Y,R,H,F,A
deleterious	D,E,P,		D,E						
A11 preferred	A,	<u>1°Anchor</u> V,T,L,M,I, S,A,G,N,C, D,F	Y,F,W,	Y,FW,	A,	Y,F,W,	Y,FW,	P,	<u>1°Anchor</u> K,,R,Y,H
deleterious	D,E,P,						A	G,	
A24 preferred 9-mer	Y,F,W,R,H,K,	<u>1°Anchor</u> Y,F,W,M		S,T,C			Y,F,W,	Y,F,W,	<u>1°Anchor</u> F,L,I,W
deleterious	D,E,G,		D,E,	G,	Q,N,P,	D,E,R,H,K,	G,	A,Q,N,	
A24 preferred 10-mer		<u>1°Anchor</u> Y,F,W,M		P,	Y,F,W,P,		P,		<u>1°Anchor</u> F,L,I,W
deleterious			G,D,E	Q,N	R,H,K	D,E	A	Q,N,	D,E,A,
A3101 preferred	R,H,K,	<u>1°Anchor</u> M,V,T,A,L, I,S	Y,F,W,	P,		Y,F,W,	Y,F,W,	A,P,	<u>1°Anchor</u> R,K
deleterious	D,E,P,		D,E,		A,D,E,	D,E,	D,E,	D,E,	

POSITION

	1	2	3	4	5	6	7	8	9 or C-terminus	C-terminus
A3301 preferred		<u>1°Anchor</u> M,V,A,L,F, I,S,T	Y,F,W				A,Y,F,W		<u>1°Anchor</u> R,K	
deleterious	G,P		D,E							
A6801 preferred	Y,F,W,S,T,C,	<u>1°Anchor</u> A,V,T,M,S, L,I			Y,F,W,L,I, V,M		Y,F,W,	P,	<u>1°Anchor</u> R,K	
deleterious	G,P,		D,E,G,		R,H,K,			A,		
B0702 preferred	R,H,K,F,W,Y,	<u>1°Anchor</u> P	R,H,K,		R,H,K,	R,H,K,	R,H,K,	P,A,	<u>1°Anchor</u> L,M,F,W,Y,A, I,V	
deleterious	D,E,Q,N,P,		D,E,P,	D,E,	D,E,	G,D,E,	Q,N,	D,E,		
B3501 preferred	F,W,Y,L,I,V,M,	<u>1°Anchor</u> P	F,W,Y,				F,W,Y,		<u>1°Anchor</u> L,M,F,W,Y,I, V,A	
deleterious	A,G,P,				G,	G,				

POSITION

	1	2	3	4	5	6	7	8	9 or C-terminus
B51 preferred	L,I,V,M,F,W,Y	<u>1°Anchor</u> P	F,W,Y	S,T,C	F,W,Y		G	F,W,Y	C-terminus <u>1°Anchor</u> L,I,V,F,W, Y,A,M
deleterious	A,G,P,D,E,R,H,K, S,T,C				D,E	G	D,E,Q,N	G,D,E	
B5301 preferred	L,I,V,M,F,W,Y	<u>1°Anchor</u> P	F,W,Y	S,T,C	F,W,Y		L,I,V,M,F, W,Y	F,W,Y	<u>1°Anchor</u> I,M,F,W,Y, A,L,V
deleterious	A,G,P,Q,N					G	R,H,K,Q,N	D,E	
B5401 preferred	F,W,Y	<u>1°Anchor</u> P	F,W,Y,L,I,V M		L,I,V,M		A,L,I,V,M	F,W,Y,A,P	<u>1°Anchor</u> A,T,I,V,L, M,F,W,Y
deleterious	G,P,Q,N,D,E		G,D,E,S,T,C		R,H,K,D,E	D,E	Q,N,D,G,E	D,E	

Italicized residues indicate less preferred or "tolerated" residues.

The information in Table II is specific for 9-mers unless otherwise specified.

Secondary anchor specificities are designated for each position independently.

Table III

<u>MOTIFS</u>	POSITION								
	<u>1° anchor 1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>1° anchor 6</u>	<u>7</u>	<u>8</u>	<u>9</u>
DR4 preferred	F, M, Y, L, I, V, W,	M,	T,		I,	V, S, T, C, P, A, L, I, M,	M, H,		M, H
deleterious				W,			R,		W, D, E
DR1 preferred	M, F, L, I, V, W, Y,			P, A, M, Q,		V, M, A, T, S, P, L, I, C,	M,		A, V, M
deleterious		C	C, H	F, D	C, W, D		G, D, E,	D	
DR7 preferred	M, F, L, I, V, W, Y,	M,	W,	A,		I, V, M, S, A, C, T, P, L,	M,		I, V
deleterious		C,		G,			G, R, D,	N	G
DR Supermotif	M, F, L, I, V, W, Y,					V, M, S, T, A, C, P, L, I,			
DR3 <u>MOTIFS</u>	<u>1° anchor 1</u>	<u>2</u>	<u>3</u>	<u>1° anchor 4</u>	<u>5</u>	<u>1° anchor 6</u>			
motif a preferred	L, I, V, M, F, Y,			D					
motif b preferred	L, I, V, M, F, A, Y,			D, N, Q, E, S, T		K, R, H			

Italicized residues indicate less preferred or “tolerated” residues. Secondary anchor specificities are designated for each position independently.

Table IV: HLA Class I Standard Peptide Binding Affinity.

ALLELE	STANDARD PEPTIDE	SEQUENCE	SEQ ID NO:	STANDARD BINDING AFFINITY (nM)
A*0101	944.02	YLEPAIAKY	51487	25
A*0201	941.01	FLPSDYFPSV	51488	5.0
A*0202	941.01	FLPSDYFPSV	51488	4.3
A*0203	941.01	FLPSDYFPSV	51488	10
A*0205	941.01	FLPSDYFPSV	51488	4.3
A*0206	941.01	FLPSDYFPSV	51488	3.7
A*0207	941.01	FLPSDYFPSV	51488	23
A*6802	1072.34	YVIKVSARV	51489	8.0
A*0301	941.12	KVFPYALINK	51490	11
A*1101	940.06	AVDLYHFLK	51491	6.0
A*3101	941.12	KVFPYALINK	51490	18
A*3301	1083.02	STLPETYVVR	51492	29
A*6801	941.12	KVFPYALINK	51490	8.0
A*2402	979.02	AYIDNYNKF	51493	12
B*0702	1075.23	APRTLVL	51494	5.5
B*3501	1021.05	FPFKYAAAF	51495	7.2
B51	1021.05	FPFKYAAAF	51495	5.5
B*5301	1021.05	FPFKYAAAF	51495	9.3
B*5401	1021.05	FPFKYAAAF	51495	10

Table V. HLA Class II Standard Peptide Binding Affinity.

Allele	Nomenclature	Standard Peptide	Sequence	SEQ ID NO:	Binding Affinity (nM)
DRB1*0101	DR1	515.01	PKYVKQNTLKLAT	51496	5.0
DRB1*0301	DR3	829.02	YKTIAFDEEARR	51497	300
DRB1*0401	DR4w4	515.01	PKYVKQNTLKLAT	51496	45
DRB1*0404	DR4w14	717.01	YARFQSQTTLKQKT	51498	50
DRB1*0405	DR4w15	717.01	YARFQSQTTLKQKT	51498	38
DRB1*0701	DR7	553.01	QYIKANSKFIGITE	51499	25
DRB1*0802	DR8w2	553.01	QYIKANSKFIGITE	51499	49
DRB1*0803	DR8w3	553.01	QYIKANSKFIGITE	51499	1600
DRB1*0901	DR9	553.01	QYIKANSKFIGITE	51499	75
DRB1*1101	DR5w11	553.01	QYIKANSKFIGITE	51499	20
DRB1*1201	DR5w12	1200.05	EALIHQLKINPYVLS	51500	298
DRB1*1302	DR6w19	650.22	QYIKANAKFIGITE	51499	3.5
DRB1*1501	DR2w2 β 1	507.02	GRTQDENPVVHFFKNIV TPRTPPP	51501	9.1
DRB3*0101	DR52a	511	NGQIGNDPNRDIL	51502	470
DRB4*0101	DRw53	717.01	YARFQSQTTLKQKT	51498	58
DRB5*0101	DR2w2 β 2	553.01	QYIKANSKFIGITE	51499	20

Table VI

HLA-supertype	Allele-specific HLA-supertype members	
	Verified ^a	Predicted ^b
A1	A*0101, A*2501, A*2601, A*2602, A*3201	A*0102, A*2604, A*3601, A*4301, A*8001
A2	A*0201, A*0202, A*0203, A*0204, A*0205, A*0206, A*0207, A*0209, A*0214, A*6802, A*6901	A*0208, A*0210, A*0211, A*0212, A*0213
A3	A*0301, A*1101, A*3101, A*3301, A*6801	A*0302, A*1102, A*2603, A*3302, A*3303, A*3401, A*3402, A*6601, A*6602, A*7401
A24	A*2301, A*2402, A*3001	A*2403, A*2404, A*3002, A*3003
B7	B*0702, B*0703, B*0704, B*0705, B*1508, B*3501, B*3502, B*3503, B*3503, B*3504, B*3505, B*3506, B*3507, B*3508, B*5101, B*5102, B*5103, B*5104, B*5105, B*5301, B*5401, B*5501, B*5502, B*5601, B*5602, B*6701, B*7801	B*1511, B*4201, B*5901
B27	B*1401, B*1402, B*1509, B*2702, B*2703, B*2704, B*2705, B*2706, B*3801, B*3901, B*3902, B*7301	B*2701, B*2707, B*2708, B*3802, B*3903, B*3904, B*3905, B*4801, B*4802, B*1510, B*1518, B*1503
B44	B*1801, B*1802, B*3701, B*4402, B*4403, B*4404, B*4001, B*4002, B*4006	B*4101, B*4501, B*4701, B*4901, B*5001
B58	B*5701, B*5702, B*5801, B*5802, B*1516, B*1517	
B62	B*1501, B*1502, B*1513, B*5201	B*1301, B*1302, B*1504, B*1505, B*1506, B*1507, B*1515, B*1520, B*1521, B*1512, B*1514, B*1510

- Verified alleles include alleles whose specificity has been determined by pool sequencing analysis, peptide binding assays, or by analysis of the sequences of CTL epitopes.
- Predicted alleles are alleles whose specificity is predicted on the basis of B and F pocket structure to overlap with the supertype specificity.

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	E1	206	10	AMLAKFKELY		1
HPV16	E1	524	8	ATVPCWNY		2
HPV16	E1	82	9	AVQLKRKY		3
HPV16	E1	353	11	CTFELSQM VQW		4
HPV16	E1	368	10	DIVDDSEIAY		5
HPV16	E1	41	11	DSDTGEDLVDF		6
HPV16	E1	372	8	DSEIAYKY		7
HPV16	E1	249	10	DSIKTLLQQY		8
HPV16	E1	43	9	DTGEDLVDF		9
HPV16	E1	384	9	DTNSNASAF		10
HPV16	E1	603	10	ELNDKNWKSF		11
HPV16	E1	356	11	ELNDKNWKSFF		12
HPV16	E1	356	8	ELSQM VQW		13
HPV16	E1	63	10	ELSQM VQWAY		14
HPV16	E1	152	9	ETETAHALF		15
HPV16	E1	331	9	ETETPCSQY		16
HPV16	E1	51	9	EVYGDTPFW		17
HPV16	E1	493	8	FIVNDNDY		18
HPV16	E1	445	9	FLOGSVICF		19
HPV16	E1	456	9	FLRYQGVEF		20
HPV16	E1	453	8	FLTALKRF		21
HPV16	E1	219	11	FMSFLTALKRF		22
HPV16	E1	586	8	FSELVRPF		23
HPV16	E1	501	9	FTFPNEFPF		24
HPV16	E1	501	8	FVNSKSHF		25
HPV16	E1	466	9	FVNSKSHFW		26
HPV16	E1	325	11	GIPKKNCILLY		27
HPV16	E1	519	9	GISNISEVY		28
HPV16	E1	272	11	GMLDDATVPCW		29
HPV16	E1	163	10	GMVLLLVRY		30
HPV16	E1	571	9	GSGGGCSQY		31
HPV16	E1	12	8	GTDSRWPY		32
HPV16	E1	12	8	GTGCNGWF		33
HPV16	E1	216	9	GTGCNGWFY		34
HPV16	E1	263	11	GVSFSELVRPF		35
HPV16	E1	348	9	HIQSLACSW		36
HPV16	E1	329	8	HSFNDCTF		37
HPV16	E1	326	11	ISEVYGDTPFW		38
HPV16	E1	369	8	ISNISEVY		39
HPV16	E1	369	9	IVDDSEIAY		40
HPV16	E1	311	11	IVDDSEIAYKY		41
HPV16	E1	610	10	KLRSTAAALY		42
HPV16	E1	483	11	KLRSTAAALYW		43
HPV16	E1	227	8	KSFRTW		44
HPV16	E1		11	KSLFGMSLMKF		45
HPV16	E1		10	KSNKSTCCDW	3.9000	46

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 Table VII
 A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	E1	323	11	KTGISNISEVY		47
HPV16	E1	252	10	KTLLOQYCLY		48
HPV16	E1	254	8	LLQYCLY		49
HPV16	E1	357	9	LSQMVQWAY		50
HPV16	E1	48	11	LVDFIVNDNDY		51
HPV16	E1	583	10	LVVTFPNEF		52
HPV16	E1	207	9	MLAKFKELY		53
HPV16	E1	520	10	MLDDATVPCW		54
HPV16	E1	454	10	MSFLTALKRF		55
HPV16	E1	420	9	MSMSQWIKY		56
HPV16	E1	273	9	MVLLLVRY		57
HPV16	E1	567	10	NINAGTDSRW		58
HPV16	E1	600	10	PVYELNDKNW		59
HPV16	E1	441	8	QIVMELRY		60
HPV16	E1	419	10	QMSMSQWIKY		61
HPV16	E1	118	10	QSRAAKRRLF		62
HPV16	E1	343	8	QTVLQHSF		63
HPV16	E1	125	10	RLFESDSGY		64
HPV16	E1	582	11	RLVVTFPNEF		65
HPV16	E1	313	8	RSTAAALY		66
HPV16	E1	313	9	RSTAAALYW		67
HPV16	E1	313	10	RSTAAALYWY		68
HPV16	E1	432	8	RVDDGGDW		69
HPV16	E1	250	9	SIKTLLOQY		70
HPV16	E1	484	10	SLFGMSLMKF		71
HPV16	E1	421	8	SMSQWIKY		72
HPV16	E1	314	8	STAAALYW		73
HPV16	E1	314	9	STAAALYWY		74
HPV16	E1	231	11	STCCDWCIAAF		75
HPV16	E1	253	9	TLLQYCLY		76
HPV16	E1	498	11	VICFVNSKSHF		77
HPV16	E1	345	11	VLOHSFNDCTF		78
HPV16	E1	443	11	VMFLRYQGVF		79
HPV16	E1	217	10	VFSSELVRPF		80
HPV16	E1	584	9	VVFTEPNEF		81
HPV16	E1	584	11	VVFTEPNEFF		82
HPV16	E1	274	8	VVLLLVRY		83
HPV16	E1	261	11	YLIHQSLACSW		84
HPV16	E1	578	9	YLHNRLVVF		85
HPV16	E1	578	11	YLHNRLVVFTF		86
HPV16	E2	331	11	AVTLTYDSEW		87
HPV16	E2	41	11	AIYYKAREMGF		88
HPV16	E2	314	8	AVSSTWIW		89
HPV16	E2	309	11	CTLYTAVSSTW		90
HPV16	E2	124	8	DICNTMIY		91
HPV16	E2	124	11	DICNTMHTYNW		92

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	E2	25	8	DLRDHIDY		93
HPV16	E2	25	9	DLRDHIDYW		94
HPV16	E2	263	9	DSAPILTAF		95
HPV16	E2	338	9	DSEWQRDQF		96
HPV16	E2	22	11	DSTDLRDHIDY		97
HPV16	E2	74	10	ELQLTLETY		98
HPV16	E2	80	8	ETIYNSQY		99
HPV16	E2	168	11	FVQFKDDAEKY		100
HPV16	E2	163	9	GIRTYFVQF		101
HPV16	E2	35	9	HMRLECAIY		102
HPV16	E2	35	10	HMRLECAIYY		103
HPV16	E2	193	8	ILCPTSVF		104
HPV16	E2	332	10	IVTLTYDSEW		105
HPV16	E2	329	9	KSAIVTLTY		106
HPV16	E2	354	9	KTTVSTGF		107
HPV16	E2	77	11	LLETIYNSQY		108
HPV16	E2	84	9	NSQYSNEKW		109
HPV16	E2	296	8	NTLKCLRY		110
HPV16	E2	296	10	NTLKCLRYRF		111
HPV16	E2	127	8	NTHIYTNW		112
HPV16	E2	9	11	NVCQDKILTHY		113
HPV16	E2	106	10	PTGCIKKHGY		114
HPV16	E2	76	8	QLTLETY		115
HPV16	E2	151	8	QVDYYGLY		116
HPV16	E2	151	9	QVDYYGLYY		117
HPV16	E2	191	10	QVILCPTSVF		118
HPV16	E2	37	8	RLECAIY		119
HPV16	E2	23	10	STDLRDHIDY		120
HPV16	E2	23	11	STDLRDHIDYW		121
HPV16	E2	261	11	SVDSAPILTAF		122
HPV16	E2	144	11	SVTVVEGQVDY		123
HPV16	E2	355	8	TITVSTGF		124
HPV16	E2	78	10	TLETIYNSQY		125
HPV16	E2	297	9	TLKCLRYRF		126
HPV16	E2	93	10	TLQDVSLEVY		127
HPV16	E2	334	8	TLTYDSEW		128
HPV16	E2	310	10	TLTYAVSSTW		129
HPV16	E2	128	11	TMHYTNWTHIY		130
HPV16	E2	146	9	TVVEGQVDY		131
HPV16	E2	146	10	TVVEGQVDYY		132
HPV16	E2	192	9	VILCPTSVF		133
HPV16	E2	333	9	VTLTYDSEW		134
HPV16	E2	145	10	VTVEGQVDY		135
HPV16	E2	145	11	VTVEGQVDYY		136
HPV16	E2	147	8	VVEGQVDY		137
HPV16	E2	147	9	VVEGQVDYY		138

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	E2	92	11	WTLQDVSLEVY		139
HPV16	E2	312	8	YTAVSSTW		140
HPV16	E2	312	10	YTAVSSTWHW		141
HPV16	E2	131	8	YTNWTHY		142
HPV16	E2	159	9	YVHEGIRTY		143
HPV16	E2	159	10	YVHEGIRTYF		144
HPV16	E5	54	10	ASAFRCFIVY		145
HPV16	E5	7	9	ASTTLLACF		146
HPV16	E5	5	11	DTASTTLLACF		147
HPV16	E5	60	9	FIVYIIFVY		148
HPV16	E5	72	9	FLIHTHARF		149
HPV16	E5	64	9	IIFVYIPLF		150
HPV16	E5	43	8	IILVLLW		151
HPV16	E5	51	10	ITAASAFRCF		152
HPV16	E5	61	8	IVYIIFVY		153
HPV16	E5	73	8	LIHTHARF		154
HPV16	E5	42	9	LIILVLLW		155
HPV16	E5	11	9	LLACFLLCF		156
HPV16	E5	32	8	LLLSVSTY		157
HPV16	E5	47	11	LLWITAASAF		158
HPV16	E5	48	10	LLWITAASAF		159
HPV16	E5	70	11	PLFLIHTHARF		160
HPV16	E5	31	9	PLLSVSTY		161
HPV16	E5	41	10	SLIILVLLW		162
HPV16	E5	8	8	STTLLACF		163
HPV16	E5	10	10	TLLACFLLCF		164
HPV16	E5	40	11	TSLIILVLLW		165
HPV16	E5	9	11	TTLACFLLCF		166
HPV16	E5	50	8	WITAASAF		167
HPV16	E5	50	11	WITAASAFRCF		168
HPV16	E5	63	10	YIIFVYIPLF		169
HPV16	E6	68	9	AVCDKCLKF		170
HPV16	E6	68	10	AVCDKCLKFY	0.0095	171
HPV16	E6	58	10	CIVYRDGNPY	0.0015	172
HPV16	E6	73	11	CLKFYKISEY		173
HPV16	E6	32	8	DIILECVY		174
HPV16	E6	92	8	GTILEQQY	0.0006	175
HPV16	E6	125	8	HLDDKKQRF		176
HPV16	E6	80	9	ISEYRHYCY	0.3100	177
HPV16	E6	59	9	IVYRDGNPY	0.0018	178
HPV16	E6	79	8	KISEYRHY		179
HPV16	E6	79	10	KISEYRHYCY	0.0090	180
HPV16	E6	44	9	LLRREVYDF		181
HPV16	E6	44	11	LLRREVYDFAF		182
HPV16	E6	43	8	QLLRREVY		183
HPV16	E6	43	10	QLLRREVYDF		184

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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV16	E6	89	11	SLYGTTLQQY	185
HPV16	E6	29	11	THIDILECVY	186
HPV16	E6	77	10	YSKISEYRIH	187
HPV16	E7	14	10	DLQPETTDLY	188
HPV16	E7	4	8	DTPTLHEY	189
HPV16	E7	18	8	ETTDLYCY	190
HPV16	L1	373	9	AISTSETTY	191
HPV16	L1	292	11	AVGENVPDDLY	192
HPV16	L1	251	10	CTSICKYPDY	193
HPV16	L1	249	9	DICTSICKY	194
HPV16	L1	484	11	DLDOFPLGRKF	195
HPV16	L1	154	8	DTENASAY	196
HPV16	L1	228	9	DTGFGAMDF	197
HPV16	L1	17	8	DVNVYHIF	198
HPV16	L1	17	9	DVNVYHIF	199
HPV16	L1	378	9	ETTYKNTNF	200
HPV16	L1	474	8	EVLNKEKF	201
HPV16	L1	5	10	FIYILVITCY	202
HPV16	L1	481	8	FSADLDQF	203
HPV16	L1	348	9	GICWGNQLF	204
HPV16	L1	499	8	GLKAKPKF	205
HPV16	L1	323	11	GSMVTSDAQIF	206
HPV16	L1	307	11	GSTANLASSNY	207
HPV16	L1	438	9	GTLEDYRF	208
HPV16	L1	22	9	HIFFQMSLW	209
HPV16	L1	102	8	HLDPNKF	210
HPV16	L1	102	10	HLDPNKF	211
HPV16	L1	418	11	HSMNSTLEDW	212
HPV16	L1	86	11	ILVPKVSGLQY	213
HPV16	L1	374	8	ISTSETTY	214
HPV16	L1	11	11	ITCYENDVNVY	215
HPV16	L1	407	10	ITLTADVMTY	216
HPV16	L1	406	11	KITLTADVMTY	217
HPV16	L1	151	11	KLDDTENASAY	218
HPV16	L1	90	10	KVSGLQYRVF	219
HPV16	L1	46	8	KVSTDEY	220
HPV16	L1	68	8	LLAVGHIPY	221
HPV16	L1	68	9	LLAVGHIPY	222
HPV16	L1	409	8	LTADVMTY	223
HPV16	L1	87	10	LVPKVSGLQY	224
HPV16	L1	226	11	MVDTGFGAMDF	225
HPV16	L1	263	11	MVSEPYGDSLF	226
HPV16	L1	325	9	MVTSDAQIF	227
HPV16	L1	311	8	NLASSNYF	228
HPV16	L1	421	8	NSTLEDW	229
HPV16	L1	421	10	NSTLEDWNF	230

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	L1	247	11	PLDICTSICKY		231
HPV16	L1	466	8	PLKKYTFW		232
HPV16	L1	43	11	PVSKVVSTDEY		233
HPV16	L1	331	8	QIFNKPYW		234
HPV16	L1	280	8	QMFVRHLF		235
HPV16	L1	100	10	RIHLDPNKF		236
HPV16	L1	67	9	RLLAUGHYP		237
HPV16	L1	67	10	RLLAUGHYPYF		238
HPV16	L1	253	8	SICKYPDY		239
HPV16	L1	28	11	SLWLPSEATVY		240
HPV16	L1	419	10	SMNSTILEDW		241
HPV16	L1	324	10	SMVTSDAQIF		242
HPV16	L1	308	10	STANLASSNY		243
HPV16	L1	308	11	STANLASSNYF		244
HPV16	L1	422	9	STILEDWNF		245
HPV16	L1	423	8	TILEDWNF		246
HPV16	L1	439	8	TLEDTYRF		247
HPV16	L1	408	9	TLTADVMTY		248
HPV16	L1	327	11	TSDAQIFNKPY		249
HPV16	L1	376	11	TSETTYKNTNF		250
HPV16	L1	252	9	TSICKYPDY		251
HPV16	L1	65	11	TSRLLAUGHYP		252
HPV16	L1	379	8	TTYKNTNF		253
HPV16	L1	379	11	TTYKNTNFKEY		254
HPV16	L1	264	10	VSEPYGDSLFF		255
HPV16	L1	264	11	VSEPYGDSLFF		256
HPV16	L1	91	9	VSLQYRVF		257
HPV16	L1	44	10	VSKVVSTDEY		258
HPV16	L1	326	8	VTSDAQIF		259
HPV16	L1	30	9	WLPSEATVY		260
HPV16	L1	260	9	YIKMVSEPY		261
HPV16	L1	7	8	YILVITCY		262
HPV16	L1	389	8	YLRIGEEY		263
HPV16	L1	275	8	YLRREQMF		264
HPV16	L1	53	8	YVARTNIY		265
HPV16	L1	53	9	YVARTNIY		266
HPV16	L2	356	11	ALPTSINNGLY		267
HPV16	L2	293	11	ALTSRRRTGIRY		268
HPV16	L2	261	8	DVDNTLYF		269
HPV16	L2	340	10	ELQITPSTY		270
HPV16	L2	242	11	FITPTKLITY		271
HPV16	L2	259	9	GIDVDNTLY		272
HPV16	L2	259	10	GIDVDNTLYF		273
HPV16	L2	364	10	GLYDIYADDF		274
HPV16	L2	63	10	GSGTGGRTGY		275
HPV16	L2	218	11	GSRPVARLGLY		276

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	L2	65	8	GTGGRITGY		277
HPV16	L2	439	8	IIADAGDF		278
HPV16	L2	439	9	IIADAGDFY		279
HPV16	L2	45	10	ILQYGSMDVF		280
HPV16	L2	45	11	ILQYGSMDVFF		281
HPV16	L2	243	10	ITPTKLITY		282
HPV16	L2	250	8	ITYDNPAY		283
HPV16	L2	430	8	IVPGSPQY		284
HPV16	L2	105	10	IVSLVEETSF		285
HPV16	L2	248	10	KLITYDNPAY		286
HPV16	L2	318	9	KSIGAKVHY		287
HPV16	L2	318	10	KSIGAKVHYH		288
HPV16	L2	318	11	KSIGAKVHYHY		289
HPV16	L2	39	10	KTIADQILQY		290
HPV16	L2	323	8	KVHYHYDF		291
HPV16	L2	427	11	LPIVPGSPQY		292
HPV16	L2	249	9	LITYDNPAY		293
HPV16	L2	183	11	LSSSTISTHNY		294
HPV16	L2	294	10	LTSRRITGIRY		295
HPV16	L2	454	11	MLRKRRLPY		296
HPV16	L2	276	8	NIAPDPDF		297
HPV16	L2	273	11	NSINIAPDPDF		298
HPV16	L2	397	10	NTTIPFGGAY		299
HPV16	L2	429	9	PVPGSPQY		300
HPV16	L2	124	10	PSIPPDVSGF		301
HPV16	L2	386	8	PSTSLSGY		302
HPV16	L2	383	11	PSVPSTSLSGY		303
HPV16	L2	172	10	PTPAETGGHF		304
HPV16	L2	358	9	PTSINNGLY		305
HPV16	L2	221	8	PVARLGLY		306
HPV16	L2	44	11	QILQYGSMDVF		307
HPV16	L2	342	8	QTTPSTY		308
HPV16	L2	234	9	QVKVVDPAF		309
HPV16	L2	9	11	RTKRASATQLY		310
HPV16	L2	319	8	SIGAKVHY		311
HPV16	L2	319	9	SIGAKVHYH		312
HPV16	L2	319	10	SIGAKVHYHY		313
HPV16	L2	274	10	SINIAPDPDF		314
HPV16	L2	360	10	SINNGLYDIY		315
HPV16	L2	125	9	SIPPDVSGF		316
HPV16	L2	104	11	SIVSLVEETSF		317
HPV16	L2	107	8	SLVEETSF		318
HPV16	L2	184	10	SSSTISTHNY		319
HPV16	L2	185	9	SSTISTHNY		320
HPV16	L2	186	8	STISTHNY		321
HPV16	L2	384	10	SVPSTSLSGY		322

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV16	L2	40	9	TIADQILQY		323
HPV16	L2	438	9	TIADAGDF		324
HPV16	L2	438	10	TIADAGDFY		325
HPV16	L2	399	8	TIPFGGAY		326
HPV16	L2	359	8	TSINNGLY		327
HPV16	L2	359	11	TSINNGLYDIY		328
HPV16	L2	295	9	TSRRTGIRY		329
HPV16	L2	156	8	THNNPTF		330
HPV16	L2	398	9	TTIPFGGAY		331
HPV16	L2	244	9	TTPTKLITY		332
HPV16	L2	153	11	TTVTTHNNPTF		333
HPV16	L2	154	10	TVITHNNPTF		334
HPV16	L2	106	9	VSLVEETSF		335
HPV16	L2	155	9	VTHNNPTF		336
HPV16	L2	393	10	YIPANTTIPF		337
HPV16	L2	437	10	YTIADAGDF		338
HPV16	L2	437	11	YTIADAGDFY		339
HPV18	E1	213	10	AMLAVFKDTY		340
HPV18	E1	526	11	AMLDADAITTCW		341
HPV18	E1	40	11	ATDTGSDMVDF		342
HPV18	E1	531	8	ATTTCWTY		343
HPV18	E1	531	9	ATTTCWTYF		344
HPV18	E1	216	11	AVFKDTYGLSF		345
HPV18	E1	437	10	CSKIDEGGDW		346
HPV18	E1	240	9	CTDWVTAIF		347
HPV18	E1	363	8	DLSEMVQW		348
HPV18	E1	363	10	DLSEMVQWAF		349
HPV18	E1	391	9	DSNSAAAF		350
HPV18	E1	637	10	DTEGNPFQTF		351
HPV18	E1	42	9	DTGSDMVDF		352
HPV18	E1	610	10	EINDKNWKCF		353
HPV18	E1	610	11	EINDKNWKCF		354
HPV18	E1	62	9	ELETAQALF		355
HPV18	E1	375	10	ELTDESMAF		356
HPV18	E1	379	8	ESDMAFEY		357
HPV18	E1	587	9	ESRITVFEF		358
HPV18	E1	338	9	EVMGDTPEW		359
HPV18	E1	50	8	FIDTQGT		360
HPV18	E1	500	9	FIQGAVISF		361
HPV18	E1	460	11	FITFLGALKSF		362
HPV18	E1	463	8	FLGALKSF		363
HPV18	E1	399	10	FLKSNCOAKY		364
HPV18	E1	452	9	FLRYQQIEF		365
HPV18	E1	226	8	FTDLVRNF		366
HPV18	E1	130	8	FTISDSGY		367
HPV18	E1	508	8	FVNSTSIIF		368

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	E1	508	9	FVNSTSIIFW		369
HPV18	E1	223	11	GLSFTDLVRNF		370
HPV18	E1	11	8	GTGCGWGF		371
HPV18	E1	11	9	GTGCGWGFY		372
HPV18	E1	473	10	GTPKKNCLVF		373
HPV18	E1	279	10	GVLLALLRY		374
HPV18	E1	249	10	GVNPTIAEGF		375
HPV18	E1	270	9	HIQCLDCKW		376
HPV18	E1	352	11	IIQHGDSDNF		377
HPV18	E1	336	11	ISEVMGDTPEW		378
HPV18	E1	506	10	ISFVNSTSHF		379
HPV18	E1	506	11	ISFVNSTSIIFW		380
HPV18	E1	461	10	ITFLGALKSF		381
HPV18	E1	590	10	ITVFEFPNAF		382
HPV18	E1	439	8	KIDEGGDW		383
HPV18	E1	318	10	KLRSSVAALY		384
HPV18	E1	318	11	KLRSSVAALYW		385
HPV18	E1	234	10	KSDKTTCTDW		386
HPV18	E1	401	8	KSNCQAKY		387
HPV18	E1	490	8	KSYFGMSF		388
HPV18	E1	490	11	KSYFGMSFIHF		389
HPV18	E1	259	10	KTLIQPFILY		390
HPV18	E1	281	8	LILALLRY		391
HPV18	E1	261	8	LIQPFILY		392
HPV18	E1	364	9	LSEMVQWAF		393
HPV18	E1	224	10	LSFTDLVRNF		394
HPV18	E1	376	9	LTDESDFAF		395
HPV18	E1	376	11	LTDESDFAF		396
HPV18	E1	214	9	MLAVFKDTY		397
HPV18	E1	527	10	MLDDATTTCW		398
HPV18	E1	47	11	MVDFDTQGT		399
HPV18	E1	574	10	NIHPAKDNRW		400
HPV18	E1	428	8	NMSQWIRF		401
HPV18	E1	487	11	NTKSYFGMSF		402
HPV18	E1	448	8	PIVQFLRY		403
HPV18	E1	607	10	PVYEINDKNW		404
HPV18	E1	426	10	QNMMSQWIRF		405
HPV18	E1	80	10	QVLHVLKRRKF		406
HPV18	E1	589	11	RITVFEFPNAF		407
HPV18	E1	128	10	RLFTISDSGY		408
HPV18	E1	320	8	RSSVAALY		409
HPV18	E1	320	9	RSSVAALYW		410
HPV18	E1	320	10	RSSVAALYWY		411
HPV18	E1	321	8	SSVAALYW		412
HPV18	E1	321	9	SSVAALYWY		413
HPV18	E1	322	8	SVAALYWY		414

Table VII

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV18	E1	260	9	TLIQPFILY	415
HPV18	E1	238	11	TTCTDWVTAIF	416
HPV18	E1	533	10	TTCTWTFYFDY	417
HPV18	E1	532	8	TTTCWTYF	418
HPV18	E1	532	11	TTTCWTFYFDY	419
HPV18	E1	591	9	TVFEFPNAFF	420
HPV18	E1	591	11	TVFEFPNASTHF	421
HPV18	E1	505	11	VISFVNSTSHF	422
HPV18	E1	81	9	VLIHVLKRRKF	423
HPV18	E1	280	9	VLILALLRY	424
HPV18	E1	339	8	VMGDTPEW	425
HPV18	E1	585	9	YLESRITVF	426
HPV18	E1	585	11	YLESRITVFEF	427
HPV18	E2	82	10	ALQGLAQSR	428
HPV18	E2	154	10	ATCVSHIRGLY	429
HPV18	E2	154	11	ATCVSHRGLYY	430
HPV18	E2	132	11	CMTYVAWDSVY	431
HPV18	E2	14	10	CVQDKIIDHY	432
HPV18	E2	156	8	CVSHRGLY	433
HPV18	E2	156	9	CVSHRGLYY	434
HPV18	E2	29	8	DIDSQIQY	435
HPV18	E2	29	9	DIDSQIQYW	436
HPV18	E2	315	8	DISSTWHW	437
HPV18	E2	26	11	DSKDIDSQIQY	438
HPV18	E2	354	9	DSVQILVGY	439
HPV18	E2	104	11	ELWNTPTTHCF	440
HPV18	E2	161	9	GLYYVKEGY	441
HPV18	E2	338	9	HSETQRTKF	442
HPV18	E2	329	9	KTGILTPTY	443
HPV18	E2	39	9	LIRWENAIFF	444
HPV18	E2	39	10	LIRWENAIFF	445
HPV18	E2	133	10	MTYVAWDSVY	446
HPV18	E2	133	11	MTYVAWDSVYY	447
HPV18	E2	297	8	NSLKCLRY	448
HPV18	E2	107	8	NTEPTHCF	449
HPV18	E2	185	9	NTGTWEVHIF	450
HPV18	E2	33	10	QIQYWQLIRW	451
HPV18	E2	38	10	QLIRWENAIFF	452
HPV18	E2	38	11	QLIRWENAIFF	453
HPV18	E2	220	9	QLQHTTSPY	454
HPV18	E2	88	9	QSRYKTEDW	455
HPV18	E2	56	11	QTLNHQVVPAY	456
HPV18	E2	305	9	RLRKHSDIY	457
HPV18	E2	230	11	STVSVGTAKTY	458
HPV18	E2	233	8	SVGTAKTY	459
HPV18	E2	355	8	SVQILVGY	460

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	E2	140	11	SVYYMTDAGTW		461
HPV18	E2	57	10	TLNIQVVPAY		462
HPV18	E2	97	10	TLQDTCEELW		463
HPV18	E2	231	10	TVSVGTAKTY		464
HPV18	E2	157	8	VSHRGLYY		465
HPV18	E2	232	9	VSVGTAKTY		466
HPV18	E2	96	11	WTLQDTCEELW		467
HPV18	E2	173	11	YIEFKSECEKY		468
HPV18	E2	143	8	YMTDAGTW		469
HPV18	E2	135	8	YVAWDSVY		470
HPV18	E2	135	9	YVAWDSVYY		471
HPV18	E2	164	9	YVKEGYNTF		472
HPV18	E2	164	10	YVKEGYNTFY		473
HPV18	E5	47	9	ATAFTVYVF		474
HPV18	E5	47	11	ATAFTVYVFCF		475
HPV18	E5	27	11	CMCAYAWVLVF		476
HPV18	E5	6	10	FLFCFCVCMY		477
HPV18	E5	50	8	FTVYVFCF		478
HPV18	E5	43	8	ITSPATAF		479
HPV18	E5	43	11	ITSPATAFTVY		480
HPV18	E5	40	11	IVVITSPATAF		481
HPV18	E5	22	10	LLPSVCMCAY		482
HPV18	E5	2	9	LSLFLFCF		483
HPV18	E5	1	8	MLSILFLF		484
HPV18	E5	1	10	MLSILFLFCF		485
HPV18	E5	21	11	PLLSVCMCAY		486
HPV18	E5	24	8	PSVCMCAY		487
HPV18	E5	24	10	PSVCMCAYAW		488
HPV18	E5	3	8	SLFLFCF		489
HPV18	E5	25	9	SVCMCAYAW		490
HPV18	E5	44	10	TSPATAFTVY		491
HPV18	E5	42	9	VITSPATAF		492
HPV18	E5	41	10	VVITSPATAF		493
HPV18	E6	27	8	DIEITCVY	0.0025	494
HPV18	E6	77	10	ELRIYSDSVY	0.0037	495
HPV18	E6	40	8	ELTEVFEF		496
HPV18	E6	40	10	ELTEVFEFAF		497
HPV18	E6	43	11	EVFEFAFKDLF		498
HPV18	E6	120	8	HLNEKRRF		499
HPV18	E6	117	11	KLRLHNEKRRF		500
HPV18	E6	92	8	KLNTNTGLY		501
HPV18	E6	36	10	KTVLELTEVF		502
HPV18	E6	41	9	LTEVFEFAF		503
HPV18	E6	74	8	RIRELRHY		504
HPV18	E6	24	11	SLQDIEITCVY		505
HPV18	E6	89	11	TLEKLTNTGLY	5.9000	506

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	E6	37	9	TVLELTVF		507
HPV18	E6	37	11	TVLELTVFEF		508
HPV18	E6	38	8	VLELTVF		509
HPV18	E6	38	10	VLELTVFEF		510
HPV18	E6	72	10	YSRRELRY		511
HPV18	E7	82	9	DLRAFQQLF		512
HPV18	E7	77	10	ESSADDLRAF		513
HPV18	E7	90	11	FLNTLSFVCPW		514
HPV18	E7	92	9	NTLSFVCPW		515
HPV18	E7	88	9	QLFLNTLSF		516
HPV18	E7	78	9	SSADDLRAF		517
HPV18	E7	93	8	TLSFVCPW		518
HPV18	L1	63	11	ALWRPSDNTVY		519
HPV18	L1	345	8	ASPGSCVY		520
HPV18	L1	407	11	ASTQSPVPGQY		521
HPV18	L1	310	8	CLRREQLF		522
HPV18	L1	2	11	CLYTRVLILHY		523
HPV18	L1	284	9	DICQSICKY		524
HPV18	L1	122	8	DIPKVSAY		525
HPV18	L1	122	10	DIPKVSAYQY		526
HPV18	L1	520	11	DLDDQYPLGRKF		527
HPV18	L1	364	9	DSQLFNKPY		528
HPV18	L1	364	10	DSQLFNKPYW		529
HPV18	L1	263	9	DTGYGAMDF		530
HPV18	L1	330	8	DTVPQSLY		531
HPV18	L1	203	10	DVRDNVSVDY		532
HPV18	L1	49	8	FLRNVNVF		533
HPV18	L1	49	11	FLRNVNVFPIF		534
HPV18	L1	517	8	FSLDLQY		535
HPV18	L1	145	8	GLPDTSIY		536
HPV18	L1	177	8	GLSGHPFY		537
HPV18	L1	342	11	GMPASPGSCVY		538
HPV18	L1	358	11	GSIVTSDSQLF		539
HPV18	L1	383	9	GVCWHNQLF		540
HPV18	L1	175	9	GVGLSGHPF		541
HPV18	L1	175	10	GVGLSGHPFY		542
HPV18	L1	38	8	IIICGHIY		543
HPV18	L1	13	10	ILLPLYGLY		544
HPV18	L1	454	11	IISMNSSILEDW		545
HPV18	L1	428	9	HVEEYDLQF		546
HPV18	L1	428	11	HVEEYDLQFIF		547
HPV18	L1	40	10	IICGHIILF		548
HPV18	L1	39	11	IICGHIILF		549
HPV18	L1	46	11	ILFLRNVNVF		550
HPV18	L1	47	10	ILFLRNVNVF		551
HPV18	L1	9	10	ILHIHLLPLY	0.0008	552

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	L1	443	10	ITLTADVMSY		553
HPV18	L1	360	9	IVTSDSQLF		554
HPV18	L1	125	10	KVSAYQYRVF		555
HPV18	L1	8	11	LILHYHLLPLY		556
HPV18	L1	14	9	LLPLYGPLY		557
HPV18	L1	103	8	LLTVGNPY		558
HPV18	L1	103	9	LLTVGNPYF		559
HPV18	L1	445	8	LTADVMSY		560
HPV18	L1	104	8	LTVGNPYF		561
HPV18	L1	298	11	MSADPYGDSMF		562
HPV18	L1	261	11	MVDYGYGAMDF		563
HPV18	L1	36	10	MVHHICGHY		564
HPV18	L1	457	8	NSSILEDW		565
HPV18	L1	457	10	NSSILEDWNF		566
HPV18	L1	510	8	NVDLKEKF		567
HPV18	L1	52	8	NVNVPIF		568
HPV18	L1	57	9	PIFLQMALW		569
HPV18	L1	282	11	PLDICQSICKY		570
HPV18	L1	173	11	PLGVGLSGHPF		571
HPV18	L1	28	8	PLHSILVY		572
HPV18	L1	26	10	PLPLHSILVY		573
HPV18	L1	472	9	PTTSLVDYTY		574
HPV18	L1	472	11	PTTSLVDYTYRF		575
HPV18	L1	412	11	PVPGQYDATKF		576
HPV18	L1	315	8	QLFARHFW		577
HPV18	L1	366	8	QLFNKPYW		578
HPV18	L1	137	8	QLPDPNKF		579
HPV18	L1	287	9	QSICKYPDY		580
HPV18	L1	410	8	QSPVPGQY		581
HPV18	L1	102	9	RLLTVGNPY		582
HPV18	L1	102	10	RLLTVGNPYF		583
HPV18	L1	135	10	RVQLPDPNKF		584
HPV18	L1	81	8	RVVNTDDY		585
HPV18	L1	288	8	SICKYPDY		586
HPV18	L1	459	8	SILEDWNF		587
HPV18	L1	359	10	SIVTSDSQLF		588
HPV18	L1	475	8	SLVDYTYRF		589
HPV18	L1	455	10	SMNSSILEDW		590
HPV18	L1	458	9	SSILEDWNF		591
HPV18	L1	100	11	SSRLLTVGNPY		592
HPV18	L1	408	10	STQSPVPGQY		593
HPV18	L1	78	11	SVARVNTDDY		594
HPV18	L1	442	11	TITLTADVMSY		595
HPV18	L1	444	9	TLTADVMSY		596
HPV18	L1	327	11	TMGDTVPQSLY		597
HPV18	L1	362	11	TSDSQLFNKPY		598

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	L1	474	9	TSLVDYTRF		599
HPV18	L1	473	8	TTSVLDTY		600
HPV18	L1	473	10	TTSVLDTYRF		601
HPV18	L1	126	9	VSAYQYRVF		602
HPV18	L1	89	8	VTPTSIFY		603
HPV18	L1	361	8	VTSDQLF		604
HPV18	L1	295	9	YLQMSADPY		605
HPV18	L1	35	11	YMVIIHCCHY		606
HPV18	L1	425	8	YSRHVEEY		607
HPV18	L1	4	9	YTRVLILHY		608
HPV18	L1	88	8	YVTPTSIF		609
HPV18	L1	88	9	YVTPTSIFY		610
HPV18	L2	286	11	ALTSRRGTGRF		611
HPV18	L2	341	8	ATEDNDLF		612
HPV18	L2	341	11	ATEDNDLFIY		613
HPV18	L2	322	11	DISPIAPSEY		614
HPV18	L2	404	11	DITLPSTTSVW		615
HPV18	L2	443	11	FIPKKRKRPY		616
HPV18	L2	241	11	FLTRPSSLITY		617
HPV18	L2	296	11	FSRLGQRATMF		618
HPV18	L2	429	8	GIHGTHYY		619
HPV18	L2	429	10	GIHGTHYYLW		620
HPV18	L2	62	10	GS GTGGRTGY		621
HPV18	L2	64	8	GTGGRTGY		622
HPV18	L2	432	10	GTHYYLWPLY		623
HPV18	L2	432	11	GTHYYLWPLY		624
HPV18	L2	183	10	GTPTSGTHGY		625
HPV18	L2	310	10	GTQIGARVHF		626
HPV18	L2	310	11	GTQIGARVHFY		627
HPV18	L2	37	11	GTTLADKILQW		628
HPV18	L2	44	10	ILQWSSLGIF		629
HPV18	L2	323	10	ISPIAPSEY		630
HPV18	L2	152	11	ISTTNFTNPAF		631
HPV18	L2	405	10	ITLPSTTSVW		632
HPV18	L2	249	8	ITYDNPAF		633
HPV18	L2	43	11	KILQWSSLGIF		634
HPV18	L2	248	9	LITYDNPAF		635
HPV18	L2	242	10	LTRPSSLITY		636
HPV18	L2	287	10	LTSSRGTVRF		637
HPV18	L2	391	10	LTSSWDVPVY		638
HPV18	L2	338	11	LVSATEDNDLF		639
HPV18	L2	386	10	NVTVP/LTSSW		640
HPV18	L2	325	8	PIAPSEY		641
HPV18	L2	390	11	PLTSSWDVPVY		642
HPV18	L2	362	8	PSRSTTSF		643
HPV18	L2	362	10	PSRSTTSFAF		644

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	L2	362	11	PSRSTTSFAFF		645
HPV18	L2	419	9	PTAPASTQY		646
HPV18	L2	120	9	PTFTGTSGF		647
HPV18	L2	376	9	PTISSASSY		648
HPV18	L2	185	8	PTSGTHGY		649
HPV18	L2	258	8	PVDTTLTF		650
HPV18	L2	360	10	PVPSRSTISF		651
HPV18	L2	312	8	QIGARVHIF		652
HPV18	L2	312	9	QIGARVHIF		653
HPV18	L2	172	10	QTGEVAGNVF		654
HPV18	L2	233	9	QVSVANPEF		655
HPV18	L2	298	9	RLGQRATMF		656
HPV18	L2	268	9	RSDVPDSDF		657
HPV18	L2	364	8	RSTTSFAF		658
HPV18	L2	364	9	RSTTSFAFF		659
HPV18	L2	364	11	RSTTSFAFFKY		660
HPV18	L2	220	8	RVAGPRLY		661
HPV18	L2	450	10	RVPYFFADGF		662
HPV18	L2	247	10	SLITYDNPAF		663
HPV18	L2	246	11	SSLITYDNPAF		664
HPV18	L2	393	8	SSWDVPVY		665
HPV18	L2	147	11	STSVSISTTNF		666
HPV18	L2	153	10	STTNFTNPAF		667
HPV18	L2	365	8	STTSFAFF		668
HPV18	L2	365	10	STTSFAFFKY		669
HPV18	L2	149	9	SVSISTTNF		670
HPV18	L2	377	8	TISSASSY		671
HPV18	L2	39	9	TLADKILQW		672
HPV18	L2	406	9	TLPSTTSVW		673
HPV18	L2	367	8	TSAFFKY		674
HPV18	L2	114	9	TSGAPRPTF		675
HPV18	L2	288	9	TSRRGTVRF		676
HPV18	L2	392	9	TSSWDVPVY		677
HPV18	L2	148	10	TSSVISTTNF		678
HPV18	L2	38	10	TTLADKILQW		679
HPV18	L2	154	9	TTNFTNPAF		680
HPV18	L2	366	9	TTSFAFFKY		681
HPV18	L2	388	8	TVPLTSSW		682
HPV18	L2	217	11	TVRRVAGPRLY		683
HPV18	L2	339	10	VSATEDNDLF		684
HPV18	L2	150	8	VSISTTNF		685
HPV18	L2	417	11	VSPAPASTQY		686
HPV18	L2	234	8	VSVANPEF		687
HPV18	L2	113	10	VTSGAPRPTF		688
HPV18	L2	387	9	VTVPLTSSW		689
HPV18	L2	112	11	VVTSGAPRPTF		690

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV18	L2	427	9	YIGHGTHY		691
HPV18	L2	427	10	YIHGHTIYY		692
HPV18	L2	436	8	YLWPLYF		693
HPV18	L2	374	11	YPTISSASSY		694
HPV31	E1	186	10	AMLGKFKELY		695
HPV31	E1	504	8	ATPCWHY		696
HPV31	E1	81	9	AVQVLKRY		697
HPV31	E1	213	9	CTDWCVAAF		698
HPV31	E1	96	8	DISSCVDY		699
HPV31	E1	421	8	DIVKFLRY		700
HPV31	E1	336	8	DLQMVQW		701
HPV31	E1	336	10	DLQMVQWAY		702
HPV31	E1	364	9	DSDSNACAF		703
HPV31	E1	352	8	DSEIAYKY		704
HPV31	E1	42	9	DTGEDMVDY		705
HPV31	E1	348	10	DVMDDEIAY		706
HPV31	E1	311	9	DVYGETPEW		707
HPV31	E1	583	10	ELSDKNWKSF		708
HPV31	E1	583	11	ELSDKNWKSFF		709
HPV31	E1	50	8	FIDNCVY		710
HPV31	E1	473	9	FLOGCIISY		711
HPV31	E1	425	9	FLRYQQIEF		712
HPV31	E1	436	8	FLSALKLF		713
HPV31	E1	199	8	FMELIRPF		714
HPV31	E1	566	9	FTFPNPFY		715
HPV31	E1	433	11	FVFLSALKLF		716
HPV31	E1	499	11	GMLDDATPCW		717
HPV31	E1	305	9	GMSNISDVY		718
HPV31	E1	252	10	GMVMLMLVRF		719
HPV31	E1	11	8	GTGNGWF	3.9000	720
HPV31	E1	11	9	GTGNGWFY		721
HPV31	E1	196	11	GVSFMEIRPF		722
HPV31	E1	222	10	GVTGTVAEGF		723
HPV31	E1	243	9	HLQSLACSW		724
HPV31	E1	328	8	HSFNDITF		725
HPV31	E1	560	9	HSRLVVFTF		726
HPV31	E1	478	11	IISYANSKSHF		727
HPV31	E1	309	11	ISDVYGETPEW		728
HPV31	E1	471	11	ISFLQGCISY		729
HPV31	E1	479	10	ISYANSKSHF		730
HPV31	E1	479	11	ISYANSKSHFW		731
HPV31	E1	291	10	KLRSTAAALY		732
HPV31	E1	291	11	KLRSTAAALYW		733
HPV31	E1	590	8	KSFRTW		734
HPV31	E1	463	11	KSYFGMSLISF		735
HPV31	E1	119	8	KTAKRRRLF		736

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	E1	232	10	KTLQPYCLY		737
HPV31	E1	412	8	KVSDEGDW		738
HPV31	E1	234	8	LLQPYCLY		739
HPV31	E1	94	10	LSDISSCVDY		740
HPV31	E1	584	9	LSKKNWKSF		741
HPV31	E1	584	10	LSKKNWKSFF		742
HPV31	E1	337	9	LSQMVDWAY		743
HPV31	E1	563	10	LVVFTFPNPF		744
HPV31	E1	500	10	MLDDATTPCW		745
HPV31	E1	187	9	MLGKFKELY		746
HPV31	E1	306	8	MSNISDVY		747
HPV31	E1	47	11	MVDFIDNCNVY		748
HPV31	E1	253	9	MVMLMLVRF		749
HPV31	E1	547	10	NINAGKDDRW		750
HPV31	E1	117	10	NSKTAKRRLF		751
HPV31	E1	93	11	PLSDISSCVDY		752
HPV31	E1	580	10	PVYELSDKNW		753
HPV31	E1	207	10	QSNKSTCTDW		754
HPV31	E1	323	8	QTVLQHSF		755
HPV31	E1	124	10	RLFELPDSGY		756
HPV31	E1	562	11	RLVFTFPNPF		757
HPV31	E1	293	8	RSTAAALY		758
HPV31	E1	293	9	RSTAAALYW		759
HPV31	E1	293	10	RSTAAALYWY		760
HPV31	E1	303	11	RTGMSNISDVY		761
HPV31	E1	40	11	SSTGEDMVDF		762
HPV31	E1	294	8	STAAALYW		763
HPV31	E1	294	9	STAAALYWY		764
HPV31	E1	211	11	STCTDWCVAAF		765
HPV31	E1	233	9	TLQPYCLY		766
HPV31	E1	333	11	TFDLSQMVQW		767
HPV31	E1	505	11	TPCWYHIDNY		768
HPV31	E1	325	11	VLQHSFNDTTF		769
HPV31	E1	349	9	VMDDSEIAY		770
HPV31	E1	349	11	VMDDSEIAYKY		771
HPV31	E1	254	8	VMLMLVRF		772
HPV31	E1	434	10	VSFLSALKLF		773
HPV31	E1	197	10	VSMELIRPF		774
HPV31	E1	223	9	VTGTVAECF		775
HPV31	E1	564	9	VVFTFPNPF		776
HPV31	E1	564	11	VVFTFPNPF		777
HPV31	E1	558	9	YLHSRLVVF		778
HPV31	E1	558	11	YLHSRLVVFTF		779
HPV31	E2	307	9	CLYRLSKY		780
HPV31	E2	22	11	DSKRLCDHIDY		781
HPV31	E2	124	8	DVHNTMHY		782

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	E2	124	11	DVHNTMHYTNW		783
HPV31	E2	197	11	ESVSSDEISF		784
HPV31	E2	80	8	ETLNNTFY		785
HPV31	E2	185	11	EVHAGGQVVF		786
HPV31	E2	200	8	FSSDEISF		787
HPV31	E2	171	8	FTEEAKKY		788
HPV31	E2	168	11	FVNFTEEAKKY		789
HPV31	E2	35	10	HIIRLECVLMY		790
HPV31	E2	164	8	HITYFVNF		791
HPV31	E2	345	9	ISTSQRDDF		792
HPV31	E2	193	8	IVFPESVF		793
HPV31	E2	312	8	LSKYKQLY		794
HPV31	E2	78	10	MLETLNNTFY		795
HPV31	E2	77	11	MMLETLNNTFY		796
HPV31	E2	303	8	NILKCLRY		797
HPV31	E2	84	9	NTEYKNEDW		798
HPV31	E2	127	8	NTMHYTNW		799
HPV31	E2	127	10	NTMHYTNWKF		800
HPV31	E2	361	9	NTSVSTGY		801
HPV31	E2	9	11	NVCQDKILEHY		802
HPV31	E2	106	10	PTGCLKKHGY		803
HPV31	E2	317	10	QLYEQVSSTW		804
HPV31	E2	191	10	QVIVFPESVF		805
HPV31	E2	151	8	QVNCKGIY		806
HPV31	E2	151	9	QVNCKGIYY		807
HPV31	E2	321	8	QVSSTWHW		808
HPV31	E2	25	8	RLCDHIDY		809
HPV31	E2	25	9	RLCDHIDYW		810
HPV31	E2	37	8	RLECVMY		811
HPV31	E2	311	9	RLSKYKQLY		812
HPV31	E2	346	8	STSQRDDF		813
HPV31	E2	198	10	SVFSSDEISF		814
HPV31	E2	128	9	TMHYTNWKF		815
HPV31	E2	128	11	TMHYTNWKFY		816
HPV31	E2	93	10	TMQOTSLELY		817
HPV31	E2	362	8	TVSVSTGY		818
HPV31	E2	192	9	VIVFPESVF		819
HPV31	E2	92	11	WTMQOTSLELY		820
HPV31	E2	344	10	YISTSQRDDF		821
HPV31	E2	131	8	YTNWKFIY		822
HPV31	E2	159	9	YVHEGHIITY		823
HPV31	E2	159	10	YVHEGHIITYF		824
HPV31	E5	40	11	ATLLLLLVILW		825
HPV31	E5	53	8	ATSPLRCF		826
HPV31	E5	53	11	ATSPLRCFCIY		827
HPV31	E5	61	8	CIVVVFY		828

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	E5	15	10	FLLCFCVLLF		829
HPV31	E5	72	9	FVIITHASF		830
HPV31	E5	6	10	ISTVSIVLCF		831
HPV31	E5	11	9	IVLCFLCF		832
HPV31	E5	16	9	LLCFCVLLF		833
HPV31	E5	43	8	LLLVILW		834
HPV31	E5	42	9	LLLLIVLW		835
HPV31	E5	32	8	LVLVSIVY		836
HPV31	E5	5	11	NISTVSIVLCF		837
HPV31	E5	70	11	PLFVIITHASF		838
HPV31	E5	56	8	PLRCFCIY		839
HPV31	E5	56	11	PLRCFCIYVVF		840
HPV31	E5	31	9	PLVLSVSVY		841
HPV31	E5	10	10	SIVLCFLCF		842
HPV31	E5	7	9	STVSIVLCF		843
HPV31	E5	41	10	TLLLLIVLW		844
HPV31	E5	54	10	TSPLRCFCIY		845
HPV31	E5	8	8	TVSIVLCF		846
HPV31	E5	51	10	VIATSPRLRCF		847
HPV31	E5	73	8	VIITHASF		848
HPV31	E5	12	8	VLCFLCF		849
HPV31	E5	9	11	VSIVLCFLCF		850
HPV31	E5	64	9	VVIYIPLF		851
HPV31	E5	50	11	WVIATSPRLRCF		852
HPV31	E5	63	10	YVVIYIPLF		853
HPV31	E6	66	11	CLRFYSKVSEF		854
HPV31	E6	63	8	CTKCLRFY		855
HPV31	E6	25	8	ELRLNCVY		856
HPV31	E6	14	10	ELSSALEIPY		857
HPV31	E6	39	9	ETEVLDFAF		858
HPV31	E6	47	8	FTDLTIVY		859
HPV31	E6	61	9	GVCTKCLRF		860
HPV31	E6	61	10	GVCTKCLRFY		861
HPV31	E6	118	8	HLDKKKRF		862
HPV31	E6	72	8	KVSEFRWY		863
HPV31	E6	72	10	KVSEFRWYRY		864
HPV31	E6	15	9	LSSALEIPY		865
HPV31	E6	37	9	LTETEVLDF		866
HPV31	E6	37	11	LTETEVLDFAF		867
HPV31	E6	36	10	QLTETEVLDF		868
HPV31	E6	16	8	SSALEIPY		869
HPV31	E6	73	9	VSEFRWYRY		870
HPV31	E6	132	9	WTGRCIACW		871
HPV31	E6	70	9	YSKVSEFRW		872
HPV31	E6	70	10	YSKVSEFRWY		873
HPV31	E7	48	10	DTSNYNIVTF		874

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	E7	4	8	ETPTLDY		875
HPV31	E7	78	10	ILQELLMGSF		876
HPV31	E7	77	11	RILQELLMGSF		877
HPV31	E7	49	9	TSYNIIVTF		878
HPV31	L1	348	9	AIANSDTTF		879
HPV31	L1	398	8	AILEDWNF		880
HPV31	L1	285	8	ATLANSTY		881
HPV31	L1	285	9	ATLANSTYF		882
HPV31	L1	224	9	DICNSICKY		883
HPV31	L1	459	11	DLDDQPLGRKF		884
HPV31	L1	129	8	DTENSRY		885
HPV31	L1	203	9	DTGFGAMDF		886
HPV31	L1	353	9	DTFKSSNF		887
HPV31	L1	270	8	ESVPTDLY		888
HPV31	L1	449	8	EVLKEKF		889
HPV31	L1	456	8	FSADLDQF		890
HPV31	L1	323	9	GICWGNQLF		891
HPV31	L1	117	11	GISGHPLLKNF		892
HPV31	L1	413	9	GSLEDITYRF		893
HPV31	L1	298	11	GSMVTSDAQIF		894
HPV31	L1	282	11	GSTATLANSTY		895
HPV31	L1	393	11	IISMNPAILEDW		896
HPV31	L1	118	10	ISGHPLLKNF		897
HPV31	L1	382	10	ITLSADIMTY		898
HPV31	L1	61	11	IVVPKVSGLQY		899
HPV31	L1	381	11	KITLSADIMTY		900
HPV31	L1	357	8	KSSNFKEY		901
HPV31	L1	65	10	KVSGLQYRVF		902
HPV31	L1	20	8	KVSTDEY		903
HPV31	L1	42	8	LLTVGHPY		904
HPV31	L1	42	9	LLTVGHPYY		905
HPV31	L1	384	8	LSADIMTY		906
HPV31	L1	43	8	LTVGHPYY		907
HPV31	L1	238	11	MVAEPYGDTLF		908
HPV31	L1	201	11	MVDTGFGAMDF		909
HPV31	L1	300	9	MVTSDAQIF		910
HPV31	L1	351	11	NSDTFKSSNF		911
HPV31	L1	227	9	NSICKYPDY		912
HPV31	L1	222	11	PLDICNSICKY		913
HPV31	L1	411	9	PSGSLEDY		914
HPV31	L1	411	11	PSGSLEDITYRF		915
HPV31	L1	17	11	PVSKVVSTDEY		916
HPV31	L1	306	8	QIFNKPYW		917
HPV31	L1	255	8	QMFVRHFF		918
HPV31	L1	41	9	RLTVGHPY		919
HPV31	L1	41	10	RLTVGHPYY		920

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	L1	77	8	RLPDPNKF		921
HPV31	L1	77	10	RLPDPNKF		922
HPV31	L1	75	10	RVRLDPNKF		923
HPV31	L1	228	8	SICKYPDY		924
HPV31	L1	414	8	SLEDTYRF		925
HPV31	L1	2	11	SLWRPSEATVY		926
HPV31	L1	394	10	SMNPAILEDW		927
HPV31	L1	299	10	SMVTSDAQIF		928
HPV31	L1	283	10	STATLANSTY		929
HPV31	L1	283	11	STATLANSTYF		930
HPV31	L1	286	8	TLANSTYF		931
HPV31	L1	383	9	TLADIMTY		932
HPV31	L1	302	11	TSDAQIFNKPY		933
HPV31	L1	354	8	TTFKSSNF		934
HPV31	L1	354	11	TTFKSSNFKEY		935
HPV31	L1	267	11	TVGESVPTDLY		936
HPV31	L1	66	9	VSGLQYRVF		937
HPV31	L1	18	10	VSKVSTDEY		938
HPV31	L1	28	8	VTRTNIY		939
HPV31	L1	301	8	VTSDAQIF		940
HPV31	L1	62	10	VVPKVSLQY		941
HPV31	L1	235	9	YLMV/AEPY		942
HPV31	L1	364	8	YLRHGEEF		943
HPV31	L1	250	8	YLRREQMF		944
HPV31	L1	27	8	YVTRTIY		945
HPV31	L1	27	9	YVTRTIY		946
HPV31	L1	286	11	ALTSRRNTVRY		947
HPV31	L2	311	9	ATIGARVHY		948
HPV31	L2	311	10	ATIGARVHY		949
HPV31	L2	311	11	ATIGARVHY		950
HPV31	L2	376	11	AVQTSASVAY		951
HPV31	L2	354	8	DIYADTDF		952
HPV31	L2	253	10	ETVNAEESLY		953
HPV31	L2	253	11	ETVNAEESLYF		954
HPV31	L2	237	11	FLSAPKQLITY		955
HPV31	L2	433	8	FVDGGDFY		956
HPV31	L2	351	11	GLYDIYADTDF		957
HPV31	L2	63	10	GSCTGGRTGY		958
HPV31	L2	65	8	GTGGRTGY		959
HPV31	L2	213	11	GVRPARLGLY		960
HPV31	L2	38	11	HTTIADQLRY		961
HPV31	L2	45	10	ILRYGSMGVF		962
HPV31	L2	45	11	ILRYGSMGVFF		963
HPV31	L2	245	8	ITYENPAY		964
HPV31	L2	244	9	LITYENPAY		965
HPV31	L2	238	10	LSAPKQLITY		966

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	L2	178	11	LSSSSISTHNY		967
HPV31	L2	395	10	LSTGFDIPF		968
HPV31	L2	287	10	LTSRRNTVRY		969
HPV31	L2	447	11	MLKRRKRKRVSY		970
HPV31	L2	269	8	NIAPDPDF		971
HPV31	L2	390	10	NTTVPLSTGF		972
HPV31	L2	410	10	PIEHAPTQVF		973
HPV31	L2	122	11	PIPHPTTSGF		974
HPV31	L2	394	11	PLSTGFDIPF		975
HPV31	L2	425	9	PTTPQVSIF		976
HPV31	L2	44	11	QILRYGSMGVF		977
HPV31	L2	243	10	QLITYENPAY		978
HPV31	L2	378	9	QSTSAVSAY		979
HPV31	L2	229	9	QVKVIDPTF		980
HPV31	L2	429	11	QVSIFVDGGDF		981
HPV31	L2	9	11	RTKRASATQLY		982
HPV31	L2	431	9	SIFVDGGDF		983
HPV31	L2	431	10	SIFVDGGDFY		984
HPV31	L2	181	8	SSISTHNY		985
HPV31	L2	180	9	SSSISTHNY		986
HPV31	L2	179	10	SSSSISTHNY		987
HPV31	L2	396	9	STGFDIPF		988
HPV31	L2	151	8	STHENPTF		989
HPV31	L2	346	8	STLNDGLY		990
HPV31	L2	346	11	STLNDGLYDIY		991
HPV31	L2	379	8	STSASVAY		992
HPV31	L2	149	10	SVSTHENPTF		993
HPV31	L2	40	9	TIADQILRY		994
HPV31	L2	312	8	TIGARVHY		995
HPV31	L2	312	9	TIGARVHYHY		996
HPV31	L2	312	10	TIGARVHYHY		997
HPV31	L2	347	10	TLNDGLYDIY		998
HPV31	L2	266	11	TSHNIAPDPDF		999
HPV31	L2	288	9	TSRRNTVRY		1000
HPV31	L2	345	9	TSTLNDGLY		1001
HPV31	L2	148	11	TSVSTHENPTF		1002
HPV31	L2	39	10	TTIADQILRY		1003
HPV31	L2	426	8	TPQVSIF		1004
HPV31	L2	344	10	TTSTLNDGLY		1005
HPV31	L2	343	11	TTTSTLNDGLY		1006
HPV31	L2	391	9	TTVPLSTGF		1007
HPV31	L2	254	9	TVNAEESLY		1008
HPV31	L2	254	10	TVNAEESLYF		1009
HPV31	L2	392	8	TVPLSTGF		1010
HPV31	L2	430	10	VSIFVDGGDF		1011
HPV31	L2	430	11	VSIFVDGGDFY		1012

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV31	L2	150	9	VSTHENPTF		1013
HPV33	E1	596	10	AINDENWKSF		1014
HPV33	E1	596	11	AINDENWKSF		1015
HPV33	E1	81	9	AVCALKRKF		1016
HPV33	E1	226	9	CTDWCTGY		1017
HPV33	E1	494	8	CVNSKSHF		1018
HPV33	E1	494	9	CVNSKSHFW		1019
HPV33	E1	349	8	DLSEMVQW		1020
HPV33	E1	349	10	DLSEMVQWAY		1021
HPV33	E1	365	8	DSDIAYY		1022
HPV33	E1	42	9	DSGTDLLEF		1023
HPV33	E1	377	9	DSNSNAAAF		1024
HPV33	E1	62	9	DTEARALF		1025
HPV33	E1	324	9	DVQGTPEW		1026
HPV33	E1	516	9	DVTPISWTY		1027
HPV33	E1	361	10	ELTDDSDIAY		1028
HPV33	E1	361	11	ELTDDSDIAYY		1029
HPV33	E1	449	8	FLGAFKKF		1030
HPV33	E1	212	8	FMELVRPF		1031
HPV33	E1	446	8	FTAFLGAF		1032
HPV33	E1	446	11	FTAFLGAFKKF		1033
HPV33	E1	265	10	GIILLIRF		1034
HPV33	E1	209	11	GISFMELVRPF		1035
HPV33	E1	11	8	GMGCTGWF		1036
HPV33	E1	512	11	GMIDVTPISW		1037
HPV33	E1	564	8	GTDSRWPY		1038
HPV33	E1	341	8	HSFNDNIF		1039
HPV33	E1	573	9	HSRLTVFEF		1040
HPV33	E1	192	11	HSSNTKANILY		1041
HPV33	E1	266	9	IIILLIRF		1042
HPV33	E1	267	8	IIILLIRF		1043
HPV33	E1	200	9	ILYKFKEAY		1044
HPV33	E1	492	10	ISCVNSKSHF		1045
HPV33	E1	492	11	ISCVNSKSHFW		1046
HPV33	E1	322	11	ISDVQGTTPWF		1047
HPV33	E1	210	10	ISFMELVRPF		1048
HPV33	E1	520	9	ISWTYIDDY		1049
HPV33	E1	124	10	KIDELEDSGY		1050
HPV33	E1	304	10	KLRSQTCALY		1051
HPV33	E1	304	11	KLRSQTCALYW		1052
HPV33	E1	220	10	KSDKTSCTDW		1053
HPV33	E1	603	8	KSFRTW		1054
HPV33	E1	476	11	KSYFGMSLIQF		1055
HPV33	E1	425	8	KTNDGGNW		1056
HPV33	E1	245	10	KVLIKQHSLY		1057
HPV33	E1	247	8	LIKQHSLY		1058

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV33	E1	438	9	LLRYQNIEF		1059
HPV33	E1	350	9	LSEMVQWAY		1060
HPV33	E1	362	9	LTDDSDIAY		1061
HPV33	E1	362	10	LTDDSDIAYY		1062
HPV33	E1	362	11	LTDDSDIAYYY		1063
HPV33	E1	576	10	LTVFEKPNPF		1064
HPV33	E1	336	8	LTVLQHSF		1065
HPV33	E1	513	10	MDDVTPISW		1066
HPV33	E1	443	11	NIEFTAF LGAF		1067
HPV33	E1	346	11	NIFDSEMVQW		1068
HPV33	E1	199	10	NILYKFKEAY		1069
HPV33	E1	195	8	NTKANILY		1070
HPV33	E1	195	10	NTKANILYKF		1071
HPV33	E1	560	10	NTNAGTDSRW		1072
HPV33	E1	519	10	PISWTYIDDY		1073
HPV33	E1	434	8	PIVQLLRY		1074
HPV33	E1	593	10	PVYAINDENW		1075
HPV33	E1	437	10	QLLRYQNIEF		1076
HPV33	E1	308	8	QTCALYWF		1077
HPV33	E1	575	11	RLTVFEKPNPF		1078
HPV33	E1	335	9	RLTVLQHSF		1079
HPV33	E1	306	8	RSQTCALY		1080
HPV33	E1	306	9	RSQTCALYW		1081
HPV33	E1	306	10	RSQTCALYWF		1082
HPV33	E1	111	10	SINKNKECTY		1083
HPV33	E1	193	10	SSNTKANILY		1084
HPV33	E1	224	11	TSCTDWCITGY		1085
HPV33	E1	110	11	TSINKNKECTY		1086
HPV33	E1	577	9	TVFEKPNPF		1087
HPV33	E1	577	11	TVFEKPNPF		1088
HPV33	E1	491	11	VISCVNSKSHF		1089
HPV33	E1	246	9	VLIKQHSLY		1090
HPV33	E1	338	11	VLQHSFNDNIF		1091
HPV33	E1	517	8	VTPISWTY		1092
HPV33	E1	571	9	YLHSRLTVF		1093
HPV33	E1	571	11	YLHSRLTVFEF		1094
HPV33	E2	78	10	ALETLSKSQY		1095
HPV33	E2	41	11	ALLYTAKOMGF		1096
HPV33	E2	288	10	AVQEKILDLY		1097
HPV33	E2	145	9	CLRYRLKPY		1098
HPV33	E2	25	10	CTMTVTGKVDY		1099
HPV33	E2	235	9	DLPSQIEHW		1100
HPV33	E2	298	10	DTAQPLTKLF		1101
HPV33	E2	282	10	ELYSSMSSTW		1102
HPV33	E2	80	10	ESNLKCLRY		1103
HPV33	E2		8	ETLSKSQY		1104

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV33	E2	100	11	EVWLCEPPKCF		1105
HPV33	E2	325	10	FVTEQQQMF		1106
HPV33	E2	34	11	KLIRMECALLY		1107
HPV33	E2	84	9	KSQYSTSQW		1108
HPV33	E2	23	11	KTDLPSEQIHW		1109
HPV33	E2	151	8	KVDYIGMY		1110
HPV33	E2	151	9	KVDYIGMY		1111
HPV33	E2	35	10	LIRMECALLY		1112
HPV33	E2	62	9	LLASKTKAF		1113
HPV33	E2	42	10	LLYTAKQMGF		1114
HPV33	E2	82	11	LSKSQYSTSQW		1115
HPV33	E2	147	8	MVTGKVDY		1116
HPV33	E2	315	11	NSKNGIVTVTF		1117
HPV33	E2	284	8	NSLKCLRY		1118
HPV33	E2	127	8	NMDYTNW		1119
HPV33	E2	60	11	PSLLASKTKAF		1120
HPV33	E2	342	9	PTVQISTGF		1121
HPV33	E2	292	9	RLKPYKELY		1122
HPV33	E2	37	8	RMECALLY		1123
HPV33	E2	61	10	SLASKTKAF		1124
HPV33	E2	302	8	SMSSTWHW		1125
HPV33	E2	301	9	SSMSSTWHW		1126
HPV33	E2	93	10	TLQOTSLEW		1127
HPV33	E2	128	11	TMDYTNWGEIY		1128
HPV33	E2	146	9	TMVTGKVDY		1129
HPV33	E2	343	8	TVQISTGF		1130
HPV33	E2	326	9	VTEQQQMF		1131
HPV33	E2	148	11	VTGKVDYIGMY		1132
HPV33	E2	102	9	WLCEPPKCF		1133
HPV33	E2	92	11	WTLQOTSLEW		1134
HPV33	E2	159	9	YIHNCEKVV		1135
HPV33	E2	159	10	YIHNCEKVYF		1136
HPV33	E2	300	8	YSSMSSTW		1137
HPV33	E2	300	10	YSSMSSTWHW		1138
HPV33	E2	44	8	YTAQMGF		1139
HPV33	E2	131	8	YTNWGEIY		1140
HPV33	E5	56	11	FLYLPMMCINF		1141
HPV33	E5	3	10	FVFLCFILF		1142
HPV33	E5	42	9	FVGSPLKIF		1143
HPV33	E5	42	10	FVGSPLKIFF		1144
HPV33	E5	5	8	FVLCFILF		1145
HPV33	E5	44	8	GSPLKIFF		1146
HPV33	E5	44	10	GSPLKIFFCY		1147
HPV33	E5	23	9	ILSISTYAW		1148
HPV33	E5	48	9	KIFFCYLLF		1149
HPV33	E5	48	11	KIFFCYLLFLY		1150

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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No
HPV33	E5	22	8	LILSISTY	1151
HPV33	E5	22	10	LILSISTYAW	1152
HPV33	E5	32	9	LLVLVLLW	1153
HPV33	E5	32	11	LLVLVLLWVF	1154
HPV33	E5	24	8	LSISTYAW	1155
HPV33	E5	35	8	LVLVLLWVF	1156
HPV33	E5	33	8	LVLVLLW	1157
HPV33	E5	33	10	LVLVLLWVF	1158
HPV33	E5	1	9	MIFVFLCF	1159
HPV33	E5	21	9	PLILSISTY	1160
HPV33	E5	21	11	PLILSISTYAW	1161
HPV33	E5	46	8	PLKIFFCY	1162
HPV33	E5	46	11	PLKIFFCYLLF	1163
HPV33	E5	34	9	VLVLLWVF	1164
HPV33	E5	31	10	WLLVLVLLW	1165
HPV33	E5	40	11	WVFGSPLKIF	1166
HPV33	E5	58	9	YLPMMCINF	1167
HPV33	E5	66	11	CLFLSKISEY	1168
HPV33	E6	69	8	FLSKISEY	1169
HPV33	E6	69	11	FLSKISEYRHY	1170
HPV33	E6	61	9	GICKLCLRF	1171
HPV33	E6	118	8	HVDLNKRF	1172
HPV33	E6	73	9	ISEYRHYNY	1173
HPV33	E6	72	8	KISEYRHY	1174
HPV33	E6	72	10	KISEYRHYNY	1175
HPV33	E6	70	10	LKISEYRHY	1176
HPV33	E6	50	11	LTVVYREGNPF	1177
HPV33	E6	36	8	PLQRSEVY	1178
HPV33	E6	36	10	PLQRSEVYDF	1179
HPV33	E6	39	9	RSEVYDFAF	1180
HPV33	E6	51	10	TVVYREGNPF	1181
HPV33	E6	52	9	VVYREGNPF	1182
HPV33	E7	14	10	DLYPEPTDLY	1183
HPV33	E7	6	11	PTLKEYVLDLY	1184
HPV33	E7	7	10	TLKEYVLDLY	1185
HPV33	E7	392	10	AMNPDILEDW	1186
HPV33	L1	284	8	ASIQSSAF	1187
HPV33	L1	284	9	ASIQSSAFF	1188
HPV33	L1	411	9	ASLQDTYRF	1189
HPV33	L1	345	10	CTQVTSdsty	1190
HPV33	L1	223	9	DICGSTCKY	1191
HPV33	L1	396	8	DILEDWQF	1192
HPV33	L1	457	11	DLDDQFPLGRKF	1193
HPV33	L1	351	9	DSTYKKNENF	1194
HPV33	L1	129	8	DTETGNKY	1195
HPV33	L1	202	9	DTGFGCMDF	1196

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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV33	L1	303	9	ESQLFNKPY	1197
HPV33	L1	303	10	ESQLFNKPYW	1198
HPV33	L1	447	8	EVDLKEKF	1199
HPV33	L1	249	8	FLRREQMF	1200
HPV33	L1	454	8	FSADLDQF	1201
HPV33	L1	322	9	GICWGNQVF	1202
HPV33	L1	117	11	GISGHPLLNKF	1203
HPV33	L1	297	11	GSMVTESQLF	1204
HPV33	L1	226	9	GSTCKYPDY	1205
HPV33	L1	281	11	GTTASIQSSAF	1206
HPV33	L1	365	9	HVEEYDLQF	1207
HPV33	L1	365	11	HVEEYDLQFVF	1208
HPV33	L1	118	10	ISGHPLLNKF	1209
HPV33	L1	65	10	KVSGLQYRVF	1210
HPV33	L1	379	11	KVTLTAEVMTY	1211
HPV33	L1	20	8	KVSTDEY	1212
HPV33	L1	42	8	LLAVGHPY	1213
HPV33	L1	42	9	LLAVGHPYF	1214
HPV33	L1	61	11	LLVPKVSGLQY	1215
HPV33	L1	382	8	LTAEVMTY	1216
HPV33	L1	62	10	LVPKVSGLQY	1217
HPV33	L1	237	11	MTSEPYGDSL	1218
HPV33	L1	200	11	MVDTFGCMDF	1219
HPV33	L1	299	9	MVTESQLF	1220
HPV33	L1	221	11	PIDICGSTCKY	1221
HPV33	L1	439	8	PLGKYTFW	1222
HPV33	L1	409	9	PSASLQDITY	1223
HPV33	L1	409	11	PSASLQDITYRF	1224
HPV33	L1	17	11	PVSKVVSTDEY	1225
HPV33	L1	305	8	QLFNKPYW	1226
HPV33	L1	254	8	QMFVRHFF	1227
HPV33	L1	347	8	QVTSDDTY	1228
HPV33	L1	41	9	RLAVGHPY	1229
HPV33	L1	41	10	RLAVGHPYF	1230
HPV33	L1	77	8	RLDPNKF	1231
HPV33	L1	77	10	RLDPNKFVF	1232
HPV33	L1	75	10	RVRLDPNKF	1233
HPV33	L1	285	8	SIQSSAFF	1234
HPV33	L1	412	8	SLQDITYRF	1235
HPV33	L1	298	10	SMVTESQLF	1236
HPV33	L1	39	11	SSRLAVGHPY	1237
HPV33	L1	227	8	STCKYPDY	1238
HPV33	L1	352	8	STYKNENF	1239
HPV33	L1	352	11	STYKNENFKEY	1240
HPV33	L1	2	11	SVWRPSEATVY	1241
HPV33	L1	266	11	TLGEAVPDDL	1242

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV33	L1	381	9	TLTAEVMTY		1243
HPV33	L1	349	11	TSDSTYKNEF		1244
HPV33	L1	238	10	TSEPYGDSL		1245
HPV33	L1	238	11	TSEPYGDSLFF		1246
HPV33	L1	301	11	TSESQFNKPY		1247
HPV33	L1	282	10	TTASIQSSAF		1248
HPV33	L1	282	11	TTASIQSSAFF		1249
HPV33	L1	66	9	VSGLQYRVF		1250
HPV33	L1	18	10	VSKVVSTDEY		1251
HPV33	L1	28	8	VSRTSIY		1252
HPV33	L1	28	9	VSRTSIYY		1253
HPV33	L1	380	10	VTLTAEVMTY		1254
HPV33	L1	300	8	VTESQLF		1255
HPV33	L1	362	8	YIRHVEEY		1256
HPV33	L1	234	9	YLKMTSEPY		1257
HPV33	L1	27	8	YVSRISIY		1258
HPV33	L1	27	9	YVSRISIYY		1259
HPV33	L1	27	10	YVSRISIYYY		1260
HPV33	L2	291	11	AITSRRHITVRF		1261
HPV33	L2	272	10	DISPAPDPDF		1262
HPV33	L2	431	10	DTIVVDGADF		1263
HPV33	L2	258	11	ESDPEDTLQF		1264
HPV33	L2	447	10	FILRRRRKRF		1265
HPV33	L2	242	11	FLTSPHKLITY		1266
HPV33	L2	183	11	FSSPTVSTQSY		1267
HPV33	L2	440	8	FVLHPSYF		1268
HPV33	L2	421	8	FVPISPEF		1269
HPV33	L2	421	10	FVPISPEFPF		1270
HPV33	L2	64	8	GSGGRTGY		1271
HPV33	L2	62	10	GSGGGRTGY		1272
HPV33	L2	218	11	GSRPVARLGLY		1273
HPV33	L2	37	11	GSTIADQILKY		1274
HPV33	L2	374	8	HTPMQHSY		1275
HPV33	L2	374	11	HTPMQHSYSTF		1276
HPV33	L2	336	8	HTVPNEQY		1277
HPV33	L2	44	10	ILKYGSLGVF		1278
HPV33	L2	44	11	ILKYGSLGVFF		1279
HPV33	L2	448	9	ILRRRRKRF		1280
HPV33	L2	448	11	ILRRRRKRFPY		1281
HPV33	L2	273	9	ISPAPDPDF		1282
HPV33	L2	155	9	ISTHLNPTF		1283
HPV33	L2	292	10	ITSRRHITVRF		1284
HPV33	L2	250	8	ITYDNPAF		1285
HPV33	L2	250	11	ITYDNPAFESF		1286
HPV33	L2	104	10	IVSLIEETSF		1287
HPV33	L2	433	8	IVVDGADF		1288

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV33	L2	248	10	KLITYDNPAF		1289
HPV33	L2	249	9	LITYDNPAF		1290
HPV33	L2	243	10	LTSPHKLITY		1291
HPV33	L2	405	11	MSGPDIPSPLF		1292
HPV33	L2	372	10	NVHTPMQHSY		1293
HPV33	L2	391	10	NVSIPLNTGF		1294
HPV33	L2	423	8	PISPFPPF		1295
HPV33	L2	333	11	PLDHTVPNEQY		1296
HPV33	L2	413	9	PLFTSSPF		1297
HPV33	L2	347	10	PLHDTSTSSY		1298
HPV33	L2	376	9	PMQHSYSTF		1299
HPV33	L2	121	9	PSIPTSGF		1300
HPV33	L2	411	11	PSPLFTSSPF		1301
HPV33	L2	186	8	PTVSTQSY		1302
HPV33	L2	221	8	PVARLGly		1303
HPV33	L2	317	8	QIGARIHY		1304
HPV33	L2	317	9	QIGARIHY		1305
HPV33	L2	43	11	QILKYGSLGVF		1306
HPV33	L2	191	11	QSYENIPMDTF		1307
HPV33	L2	153	11	QTISTHLNPTF		1308
HPV33	L2	234	9	QVKVVDPAF		1309
HPV33	L2	357	10	SINDGLYDVY		1310
HPV33	L2	393	8	SIPLNTGF		1311
HPV33	L2	122	8	SIPTSGF		1312
HPV33	L2	103	11	SIVSLIEETSF		1313
HPV33	L2	106	8	SLIEETSF		1314
HPV33	L2	418	10	SSPFVPISPF		1315
HPV33	L2	418	11	SSPFVPISPEF		1316
HPV33	L2	184	10	SSPTVSTQSY		1317
HPV33	L2	354	10	SSYSINDGLY		1318
HPV33	L2	156	8	STHLNPTF		1319
HPV33	L2	38	10	STIADQILKY		1320
HPV33	L2	39	9	TIADQILKY		1321
HPV33	L2	154	10	TISTHLNPTF		1322
HPV33	L2	432	9	TIVVDGADF		1323
HPV33	L2	244	9	TSPHKLITY		1324
HPV33	L2	293	9	TSRRHTVRF		1325
HPV33	L2	417	11	TSSPFVPISPF		1326
HPV33	L2	353	11	TSSYSINDGLY		1327
HPV33	L2	392	9	VSIPLNTGF		1328
HPV33	L2	105	9	VSLIEETSF		1329
HPV33	L2	356	8	YSINDGLY		1330
HPV33	L2	356	11	YSINDGLYDVY		1331
HPV45	E1	199	10	AMLAVFKDIY		1332
HPV45	E1	512	11	AMLDATHTCW		1333
HPV45	E1	40	11	ATDTGSDMVDV		1334

Seq. Id. No.

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV45	E1	517	8	ATHTCWTY	1335
HPV45	E1	517	9	ATHTCWTYF	1336
HPV45	E1	202	11	AVFKDIYGLSF	1337
HPV45	E1	423	10	CSKIDEGGDW	1338
HPV45	E1	226	9	CTDWVMAIF	1339
HPV45	E1	349	8	DLSDMVQW	1340
HPV45	E1	349	10	DLSDMVQWAF	1341
HPV45	E1	361	10	DLTDESMAF	1342
HPV45	E1	623	10	DTEGIPGTF	1343
HPV45	E1	42	9	DTGSDMVDF	1344
HPV45	E1	596	10	EINDKNWKCF	1345
HPV45	E1	596	11	EINDKNWKCF	1346
HPV45	E1	365	8	ESDMAFY	1347
HPV45	E1	573	9	ESRVTVFTF	1348
HPV45	E1	324	9	EVSGDTPEW	1349
HPV45	E1	446	11	FISFLRALKEF	1350
HPV45	E1	385	10	FLKSNCQAKY	1351
HPV45	E1	486	9	FLQGAISF	1352
HPV45	E1	449	8	FLRALKEF	1353
HPV45	E1	438	9	FLRYQGVF	1354
HPV45	E1	212	8	FTDLVRNF	1355
HPV45	E1	579	9	FTPFAFPF	1356
HPV45	E1	130	8	FTISDSGY	1357
HPV45	E1	494	8	FVNSNSHF	1358
HPV45	E1	494	9	FVNSNSHFW	1359
HPV45	E1	209	11	GLSFTDLVRNF	1360
HPV45	E1	11	8	GTGCNGWF	1361
HPV45	E1	11	9	GTGCNGWFF	1362
HPV45	E1	459	11	GTPKKNCILLY	1363
HPV45	E1	265	10	GVLIHALLRY	1364
HPV45	E1	235	10	GVNPTVAEGF	1365
HPV45	E1	256	9	HQCLDCKW	1366
HPV45	E1	519	10	HTCWTFDNY	1367
HPV45	E1	338	11	IIQHIGIDDSNF	1368
HPV45	E1	491	11	IISFVNSNSHF	1369
HPV45	E1	322	11	ISEVSGDTPEW	1370
HPV45	E1	447	10	ISFLRALKEF	1371
HPV45	E1	492	10	ISFVNSNSHF	1372
HPV45	E1	492	11	ISFVNSNSHFW	1373
HPV45	E1	425	8	KIDEGGDW	1374
HPV45	E1	304	10	KLRSSVAALY	1375
HPV45	E1	304	11	KLRSSVAALYW	1376
HPV45	E1	220	10	KSDKTTCTDW	1377
HPV45	E1	387	8	KSNCQAKY	1378
HPV45	E1	476	8	KSYFGMSF	1379
HPV45	E1	476	11	KSYFGMSFIIIF	1380

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV45	E1	245	10	KTLIKPATLY		1381
HPV45	E1	247	8	LIKPATLY		1382
HPV45	E1	267	8	LILALLRY		1383
HPV45	E1	350	9	LSDMVQWAF		1384
HPV45	E1	210	10	LSFTDLVRNF		1385
HPV45	E1	362	9	LTDESDFMAF		1386
HPV45	E1	362	11	LTDESDFMAFY		1387
HPV45	E1	200	9	MLAVFKDIY		1388
HPV45	E1	513	10	MLDDATHTCW		1389
HPV45	E1	560	10	NIDPAKDNKW		1390
HPV45	E1	414	8	NMSQWIKY		1391
HPV45	E1	473	11	NTGKSYFGMSF		1392
HPV45	E1	434	8	PIVQFLRY		1393
HPV45	E1	593	10	PVYEINDKNW		1394
HPV45	E1	412	10	QNMMSQWIKY		1395
HPV45	E1	80	10	QVLHLLKRF		1396
HPV45	E1	128	10	RLFTISDSGY		1397
HPV45	E1	306	8	RSSVAALY		1398
HPV45	E1	306	9	RSSVAALYW		1399
HPV45	E1	306	10	RSSVAALYWY		1400
HPV45	E1	575	11	RVTVTFPHAF		1401
HPV45	E1	307	8	SSVAALYW		1402
HPV45	E1	307	9	SSVAALYWY		1403
HPV45	E1	308	8	SVAALYWY		1404
HPV45	E1	246	9	TLIKPATLY		1405
HPV45	E1	224	11	TTCTDWMMAIF		1406
HPV45	E1	577	9	TVTFPHAF		1407
HPV45	E1	577	11	TVTFPHAFPF		1408
HPV45	E1	81	9	VLHLKRF		1409
HPV45	E1	266	9	VLJLALLRY		1410
HPV45	E1	325	8	VSGDTPFW		1411
HPV45	E1	576	10	VTVTFPHAF		1412
HPV45	E1	571	9	YLESRVTVF		1413
HPV45	E1	571	11	YLESRVTVTF		1414
HPV45	E2	84	10	ALGLAQSKY		1415
HPV45	E2	16	10	ALQDKILDHY		1416
HPV45	E2	305	9	CLRYRLRKY		1417
HPV45	E2	134	11	CMNYVVWDSIY		1418
HPV45	E2	158	8	CVSYWGVY		1419
HPV45	E2	158	9	CVSYWGVY		1420
HPV45	E2	31	8	DINSQISY		1421
HPV45	E2	31	9	DINSQISYW		1422
HPV45	E2	28	11	DSKDINSQISY		1423
HPV45	E2	171	8	DTYYVQF		1424
HPV45	E2	319	8	EISSTWHW		1425
HPV45	E2	106	11	ELWNTPEPSQCF		1426

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV45	E2	154	8	KTAACVSY		1427
HPV45	E2	154	9	KTAACVSYW		1428
HPV45	E2	41	10	LIRLENAILF		1429
HPV45	E2	341	9	NSEVQRNTF		1430
HPV45	E2	301	8	NSLKCLRY		1431
HPV45	E2	187	9	NSNTWEVQY		1432
HPV45	E2	357	9	NSVQISVGY		1433
HPV45	E2	109	8	NTEPSQCF		1434
HPV45	E2	332	9	NTGILTVTY		1435
HPV45	E2	40	11	QLIRLENAILF		1436
HPV45	E2	90	9	QSKYNNNEW		1437
HPV45	E2	43	8	RLENAILF		1438
HPV45	E2	309	9	RLRKYADHY		1439
HPV45	E2	142	11	SIYYITETGIW		1440
HPV45	E2	358	8	SVQISVGY		1441
HPV45	E2	99	10	TLQDTCEELW		1442
HPV45	E2	159	8	VSYWGVVY		1443
HPV45	E2	138	8	VVWDSIY		1444
HPV45	E2	98	11	WLQDTCEELW		1445
HPV45	E2	166	9	YIKDGDITY		1446
HPV45	E2	166	10	YIKDGDITY		1447
HPV45	E2	145	8	YITETGIW		1448
HPV45	E2	317	8	YSEISSTW		1449
HPV45	E2	317	10	YSEISSTWHW		1450
HPV45	E2	175	11	YVQFKSECEKY		1451
HPV45	E2	137	8	YVWVDSIY		1452
HPV45	E2	137	9	YVWVDSIY		1453
HPV45	E2	37	9	ATLERTEVY		1454
HPV45	E6	37	11	ATLERTEVYQF		1455
HPV45	E6	27	8	DVSIACVY		1456
HPV45	E6	77	10	ELRYYSNSVY		1457
HPV45	E6	43	11	EVYQFAFKDLF		1458
HPV45	E6	53	10	FIVYRDCIAY		1459
HPV45	E6	120	8	HLKDKRRF		1460
HPV45	E6	54	9	IVYRDCIAY		1461
HPV45	E6	92	8	KITNTELY		1462
HPV45	E6	74	8	RIRELRY		1463
HPV45	E6	41	9	RTEVYQF		1464
HPV45	E6	24	11	SLQDVSIACVY		1465
HPV45	E6	89	11	LEKITNTELY		1466
HPV45	E6	38	8	TLERTEVY		1467
HPV45	E6	38	10	TLERTEVYQF		1468
HPV45	E6	72	9	YSRIRELRY		1469
HPV45	E6	72	10	YSRIRELRY		1470
HPV45	E7	83	9	DLRTLQQLF		1471
HPV45	E7	20	10	ELDPVDLLCY		1472

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV45	E7	91	11	FLSTLSFVCPW		1473
HPV45	E7	92	10	LSTLSFVCPW		1474
HPV45	E7	89	9	QLFLSTLSF		1475
HPV45	E7	93	9	STLSFVCPW		1476
HPV45	E7	94	8	TLSFVCPW		1477
HPV45	L1	103	8	ALPDPNKF		1478
HPV45	L1	28	11	ALWRPSDSTVY		1479
HPV45	L1	375	11	ASTQNPVPNTY		1480
HPV45	L1	88	8	AVPKVSAY		1481
HPV45	L1	88	10	AVPKVSAYQY		1482
HPV45	L1	276	8	CLRREQLF		1483
HPV45	L1	188	9	CVPAIGEHW		1484
HPV45	L1	250	9	DICQSICKY		1485
HPV45	L1	488	11	DLDDQYPLGRKF		1486
HPV45	L1	332	9	DSQLFNKPY		1487
HPV45	L1	332	10	DSQLFNKPYW		1488
HPV45	L1	229	9	DTGYGAMDF		1489
HPV45	L1	461	11	DTTPPEKQDPY		1490
HPV45	L1	296	8	DTVPTDLY		1491
HPV45	L1	169	10	DVRDNVSVDY		1492
HPV45	L1	313	8	ETPGSCVY		1493
HPV45	L1	14	8	FLKNVNVF		1494
HPV45	L1	14	11	FLKNVNVFPIF		1495
HPV45	L1	485	8	FSSDLQY		1496
HPV45	L1	351	9	GICWHNQLF		1497
HPV45	L1	141	9	GIGLSGHPF		1498
HPV45	L1	141	10	GIGLSGHPFY		1499
HPV45	L1	111	8	GLPDSTIY		1500
HPV45	L1	143	8	GLSGHPFY		1501
HPV45	L1	326	11	GSITSDSQLF		1502
HPV45	L1	422	11	HSMNSSILENW		1503
HPV45	L1	396	9	HVEEYDLQF		1504
HPV45	L1	396	11	HVEEYDLQFIF		1505
HPV45	L1	12	10	IIFLKNVNVF		1506
HPV45	L1	11	11	IIFLKNVNVF		1507
HPV45	L1	5	10	IYGHGIIIF		1508
HPV45	L1	411	10	ITLTAEVMSY		1509
HPV45	L1	328	9	ITTSDSQLF		1510
HPV45	L1	91	10	KVSAYQYRVF		1511
HPV45	L1	68	8	LLTVGNPY		1512
HPV45	L1	68	9	LLTVGNPYF		1513
HPV45	L1	413	8	LTAEVMSY		1514
HPV45	L1	69	8	LTVGNPYF		1515
HPV45	L1	264	11	MSADPYGDSMF		1516
HPV45	L1	227	11	MVDTGYGAMDF		1517
HPV45	L1	4	11	NIYGHGIIIF		1518

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV45	L1	310	11	NMRETPGSCVY		1519
HPV45	L1	425	8	NSSILENW		1520
HPV45	L1	425	10	NSSILENWNF		1521
HPV45	L1	383	8	NTYDPTKF		1522
HPV45	L1	383	11	NTYDPTKFKHY		1523
HPV45	L1	17	8	NVNVPIF		1524
HPV45	L1	22	9	PIFLQMALW		1525
HPV45	L1	248	11	PLDICQSICKY		1526
HPV45	L1	139	11	PLGIGLSGHPF		1527
HPV45	L1	440	9	PTTSLVDITY		1528
HPV45	L1	440	11	PTTSLVDITYRF		1529
HPV45	L1	380	11	PVPNTYDPTKF		1530
HPV45	L1	281	8	QLFARHF		1531
HPV45	L1	334	8	QLFNKPYW		1532
HPV45	L1	253	9	QSICKYPDY		1533
HPV45	L1	67	9	RLLTVGNPY		1534
HPV45	L1	67	10	RLLTVGNPYF		1535
HPV45	L1	101	10	RVALPDNKF		1536
HPV45	L1	46	8	RVNTDDY		1537
HPV45	L1	254	8	SICKYPDY		1538
HPV45	L1	427	8	SILENWNF		1539
HPV45	L1	327	10	SITSDSQLF		1540
HPV45	L1	443	8	SLVDITYRF		1541
HPV45	L1	423	10	SMSSILENW		1542
HPV45	L1	426	9	SSILENWNF		1543
HPV45	L1	65	11	SSRLLTVGNPY		1544
HPV45	L1	376	10	STQNPVPNTY		1545
HPV45	L1	43	11	SVARVVNTDDY		1546
HPV45	L1	410	11	TITLAEVMSY		1547
HPV45	L1	412	9	TLTAEVMSY		1548
HPV45	L1	330	11	TSDSQLFNKPY		1549
HPV45	L1	442	9	TSLVDITYRF		1550
HPV45	L1	462	10	TTPEKQDPY		1551
HPV45	L1	329	8	TTSDSQLF		1552
HPV45	L1	441	8	TTSLVDITY		1553
HPV45	L1	441	10	TTSLVDITYRF		1554
HPV45	L1	478	8	TVDLKEKF		1555
HPV45	L1	293	11	VMGDTVPTDLY		1556
HPV45	L1	92	9	VSAQYRVF		1557
HPV45	L1	54	8	VSRTSIFY		1558
HPV45	L1	477	9	WTVDLKEKF		1559
HPV45	L1	261	9	YLQMSADPY		1560
HPV45	L1	393	8	YSRIIVEEY		1561
HPV45	L1	53	8	YVSRTSIF		1562
HPV45	L1	53	9	YVSRTSIFY		1563
HPV45	L2	286	11	ALSSRRGTGRF		1564

Seq. Id. No.

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV45	L2	114	9	ASGAPVPTF	1565
HPV45	L2	340	8	ATNDSDLF	1566
HPV45	L2	340	11	ATNDSDLFDVY	1567
HPV45	L2	405	11	DIILPSHTPMW	1568
HPV45	L2	345	9	DLEFDVYADF	1569
HPV45	L2	343	8	DSDLFDVY	1570
HPV45	L2	343	11	DSDLFDVYADF	1571
HPV45	L2	148	10	DSVSISSTSF	1572
HPV45	L2	241	11	FLTHPSSLVTF	1573
HPV45	L2	296	11	FSRLGQRATMF	1574
HPV45	L2	430	8	GIHGTQYY	1575
HPV45	L2	430	10	GIHGTQYYLW	1576
HPV45	L2	64	8	GSGGRITG	1577
HPV45	L2	62	10	GSGSGGRTGY	1578
HPV45	L2	183	10	GTPSGSGHY	1579
HPV45	L2	433	9	GTQYYLWPW	1580
HPV45	L2	433	10	GTQYYLWPWY	1581
HPV45	L2	433	11	GTQYYLWPWYY	1582
HPV45	L2	37	11	GTTLADKILQW	1583
HPV45	L2	406	10	ILPSHTPMW	1584
HPV45	L2	407	9	ILPSHTPMW	1585
HPV45	L2	44	10	ILQWSSLGIF	1586
HPV45	L2	338	10	ISATNDSDLF	1587
HPV45	L2	152	11	ISSTFTNPAP	1588
HPV45	L2	43	11	KILQWSSLGIF	1589
HPV45	L2	366	8	KSFTYPKY	1590
HPV45	L2	337	11	LISATNDSDLF	1591
HPV45	L2	287	10	LSSRRGTVRF	1592
HPV45	L2	242	10	LTHPSSLVTF	1593
HPV45	L2	375	11	LTMPSTAASSY	1594
HPV45	L2	392	10	LTSAWDVPIY	1595
HPV45	L2	248	9	LVTFDNPAY	1596
HPV45	L2	387	10	NVTVPPLTSAW	1597
HPV45	L2	258	8	PLDITLSF	1598
HPV45	L2	391	11	PLTSAWDVPIY	1599
HPV45	L2	378	8	PSTAASSY	1600
HPV45	L2	361	8	PSTIHKSF	1601
HPV45	L2	361	10	PSTIHKSFTY	1602
HPV45	L2	120	9	PTFTGTSGF	1603
HPV45	L2	420	9	PTNASTTTY	1604
HPV45	L2	185	8	PTSGSHGY	1605
HPV45	L2	267	10	PTSNVPPDSDF	1606
HPV45	L2	118	11	PVPTFTGTSGF	1607
HPV45	L2	312	8	QIGGRVHF	1608
HPV45	L2	312	9	QIGGRVIIFY	1609
HPV45	L2	172	10	QTGEVSGNIF	1610

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Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV45	L2	233	9	QVRVSTSQF		1611
HPV45	L2	451	10	RIPYFFADGF		1612
HPV45	L2	298	9	RLGQRATMF		1613
HPV45	L2	220	8	RVRGPRLY		1614
HPV45	L2	247	10	SLVTFDNPAY		1615
HPV45	L2	246	11	SSLVTFDNPAY		1616
HPV45	L2	288	9	SSRRGTVERF		1617
HPV45	L2	153	10	SSTSFNPAF		1618
HPV45	L2	362	9	STHKSTFY		1619
HPV45	L2	154	9	STSFTNPAF		1620
HPV45	L2	358	11	STTPSTHKSF		1621
HPV45	L2	149	9	SVSISSTF		1622
HPV45	L2	363	8	THKSFTY		1623
HPV45	L2	363	11	THKSFTYPKY		1624
HPV45	L2	39	9	TLADKILQW		1625
HPV45	L2	376	10	TMPSTAASSY		1626
HPV45	L2	393	9	TSAWDVPIY		1627
HPV45	L2	155	8	TSFTNPAF		1628
HPV45	L2	268	9	TSNVPDSDF		1629
HPV45	L2	418	11	TSPTNASTTYY		1630
HPV45	L2	38	10	TTLADKILQW		1631
HPV45	L2	359	10	TPSTTHKSF		1632
HPV45	L2	426	11	TTYIGHGTQY		1633
HPV45	L2	389	8	TVPLTSAW		1634
HPV45	L2	217	11	TVRRVRGPRLY		1635
HPV45	L2	150	8	VSISSSTF		1636
HPV45	L2	249	8	VTFDNPAY		1637
HPV45	L2	388	9	VTVPLTSAW		1638
HPV45	L2	112	11	VVASGAPVPTF		1639
HPV45	L2	428	9	YIGHGTQY		1640
HPV45	L2	428	10	YIGHGTQYY		1641
HPV45	L2	437	8	YLWPWYYY		1642
HPV45	L2	437	9	YLWPWYYYF		1643
HPV45	L2	21	10	ALESSTIY		1644
HPV56	E2	71	9	CMQYVAWKY		1645
HPV56	E2	71	11	CMQYVAWKYIY		1646
HPV56	E2	92	10	CSGVDYRGIIY		1647
HPV56	E2	92	11	CSGVDYRGIIY		1648
HPV56	E2	140	9	DSVSTCRY		1649
HPV56	E2	263	8	DVTSTYIHW		1650
HPV56	E2	43	11	ELWLTEPKKCF		1651
HPV56	E2	23	8	ESLSTIY		1652
HPV56	E2	128	10	EVHMENESIY		1653
HPV56	E2	294	11	FLSHVKIPVY		1654
HPV56	E2	261	8	FVDVTSTY		1655
HPV56	E2	261	10	FVDVTSTYHW		1656

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV56	E2	66	9	GSKNNCMQY		1657
HPV56	E2	94	8	GVDYRGIIY		1658
HPV56	E2	94	9	GVDYRGIIY		1659
HPV56	E2	130	8	HMENESIY		1660
HPV56	E2	297	8	HVKIPVYV		1661
HPV56	E2	299	10	KIPVVYRLVW		1662
HPV56	E2	258	11	KTLFVDVTSTY		1663
HPV56	E2	90	8	KVCSGVGY		1664
HPV56	E2	295	10	LSHVKIPVYV		1665
HPV56	E2	25	11	LSTIYNNEEW		1666
HPV56	E2	46	8	LTEPKKCF		1667
HPV56	E2	149	11	NVSPVETVNEY		1668
HPV56	E2	152	8	PVETVNEY		1669
HPV56	E2	301	8	PVYRLVW		1670
HPV56	E2	246	9	RLKCCRYRF		1671
HPV56	E2	26	10	STIYNNEEW		1672
HPV56	E2	141	8	SVSSTCRY		1673
HPV56	E2	28	8	TIYNNEEW		1674
HPV56	E2	259	10	TLFVDVTSTY		1675
HPV56	E2	36	10	TLRDTCEELW		1676
HPV56	E2	271	8	TSTDNKNY		1677
HPV56	E2	27	9	TTIYNNEEW		1678
HPV56	E2	150	10	VSPVETVNEY		1679
HPV56	E2	45	9	WLTEPKKCF		1680
HPV56	E2	35	11	WTLRDTCEELW		1681
HPV56	E2	270	9	WTSTDNKNY		1682
HPV56	E2	79	10	YIYNGDCGW		1683
HPV56	E2	278	8	YSIITIY		1684
HPV56	E2	111	11	YTDPEQEAKKF		1685
HPV56	E2	74	8	YVAWKYIY		1686
HPV56	E2	74	9	YVAWKYIY		1687
HPV56	E2	102	9	YVHDGHKTY		1688
HPV56	E2	102	10	YVHDGHKTY		1689
HPV56	E6	64	9	AVCRVCLLF		1690
HPV56	E6	64	10	AVCRVCLLFY		1691
HPV56	E6	69	11	CLLFYSKVRKY		1692
HPV56	E6	50	8	CTELKLVY		1693
HPV56	E6	28	8	DLRLSCVY		1694
HPV56	E6	52	10	ELKLVYRDDF		1695
HPV56	E6	39	8	ELTRAEVY		1696
HPV56	E6	39	10	ELTRAEVYNF		1697
HPV56	E6	54	8	KLVRDDF		1698
HPV56	E6	54	10	KLVRDDFPY		1699
HPV56	E6	75	8	KVRKYRY		1700
HPV56	E6	75	10	KVRKYRYDY		1701
HPV56	E6	26	10	LIDLRLSCVY		1702

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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV56	E6	70	10	LLFYSKVRKY	1703
HPV56	E6	40	9	LTRAEVYNF	1704
HPV56	E6	55	9	LVYRDDFPY	1705
HPV56	E6	25	11	PLIDRLSCVY	1706
HPV56	E6	98	10	QLCDLLIRCY	1707
HPV56	E6	119	10	QLHCDRKRFR	1708
HPV56	E6	135	9	WTGSCLCGW	1709
HPV56	E6	73	9	YSKVRKYRY	1710
HPV56	E6	73	10	YSKVRKYRY	1711
HPV56	E7	62	9	HVPCCECKF	1712
HPV56	E7	60	11	LHVPCCCECKF	1713
HPV56	L1	381	8	ATEQLSKY	1714
HPV56	L1	444	8	ATSLDKY	1715
HPV56	L1	444	10	ATSLDKYRY	1716
HPV56	L1	37	11	ATWRPSENKVV	1717
HPV56	L1	26	8	AVNVFPIF	1718
HPV56	L1	195	8	CTPAMGEHW	1719
HPV56	L1	257	9	DIVQSTCKY	1720
HPV56	L1	491	11	DLQFPLGRKF	1721
HPV56	L1	486	10	DSFSTDLDQF	1722
HPV56	L1	60	10	DSYVVKRTSIF	1723
HPV56	L1	60	11	DSYVVKRTSIFY	1724
HPV56	L1	236	9	DTGFGAMDF	1725
HPV56	L1	23	8	DVGAVNVF	1726
HPV56	L1	23	11	DVGAVNVFPIF	1727
HPV56	L1	481	8	DVNLQDSF	1728
HPV56	L1	303	8	ETIPAELY	1729
HPV56	L1	21	10	FLDVGAVNVF	1730
HPV56	L1	488	8	FSTDLDQF	1731
HPV56	L1	356	9	GIWGNQLF	1732
HPV56	L1	118	8	GLPDTNIY	1733
HPV56	L1	150	8	GLSGHPLF	1734
HPV56	L1	331	11	GSMITSEAQLF	1735
HPV56	L1	399	9	HVEEYELQF	1736
HPV56	L1	399	11	HVEEYELQFVF	1737
HPV56	L1	378	11	ISTATEQLSKY	1738
HPV56	L1	414	10	ITLSAEVMAY	1739
HPV56	L1	334	8	ITSEAQLF	1740
HPV56	L1	258	8	IVQSTCKY	1741
HPV56	L1	258	11	IVQSTCKYPDY	1742
HPV56	L1	413	11	KITLSAEVMAY	1743
HPV56	L1	93	10	KTNIPKVSAY	1744
HPV56	L1	300	11	KVGETIPAELY	1745
HPV56	L1	98	10	KVSAYQYRVF	1746
HPV56	L1	55	8	KVVATDSY	1747
HPV56	L1	77	8	LLAVGHPY	1748

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV56	L1	77	9	LLAVGHPY		1749
HPV56	L1	416	8	LSAEVMAY		1750
HPV56	L1	234	11	MIDTGFAMDF		1751
HPV56	L1	333	9	MITSEAQLF		1752
HPV56	L1	2	8	MLPMMYIY		1753
HPV56	L1	1	9	MMMLPMMYIY		1754
HPV56	L1	271	11	MSADAYGDSMW		1755
HPV56	L1	95	8	NIPKVSAY		1756
HPV56	L1	95	10	NIPKVSAYQY		1757
HPV56	L1	426	10	NMANLLEDW		1758
HPV56	L1	31	9	PIFLQMATW		1759
HPV56	L1	473	8	PLAKYKFW		1760
HPV56	L1	255	11	PLDIVQSTCKY		1761
HPV56	L1	13	9	PLHYGLCIF		1762
HPV56	L1	467	11	PTKQDPLAKY		1763
HPV56	L1	442	10	PVATSLDKY		1764
HPV56	L1	52	11	PVSKVVATDSY		1765
HPV56	L1	288	8	QLFARHYF		1766
HPV56	L1	339	8	QLFNKPYW		1767
HPV56	L1	260	9	QSTCKYPDY		1768
HPV56	L1	76	9	RLAVGHPY		1769
HPV56	L1	76	10	RLAVGHPY		1770
HPV56	L1	110	8	RLPDPNKF		1771
HPV56	L1	108	10	RVRLDPNKF		1772
HPV56	L1	446	8	SLEDKYRY		1773
HPV56	L1	332	10	SMITSEAQLF		1774
HPV56	L1	74	11	SSRLAVGHPY		1775
HPV56	L1	379	10	STATEQLSKY		1776
HPV56	L1	261	8	STCKYPDY		1777
HPV56	L1	415	9	TLSAEVMAY		1778
HPV56	L1	335	11	TSEAQLFNKPY		1779
HPV56	L1	445	9	TSLEDKYRY		1780
HPV56	L1	99	9	VSAYQYRVF		1781
HPV56	L1	53	10	VSKVVATDSY		1782
HPV56	L1	7	10	YIYRDPPLHY		1783
HPV56	L1	268	9	YLKMSADAY		1784
HPV56	L1	396	8	YLRHVEEY		1785
HPV56	L1	283	8	YLRREQLF		1786
HPV56	L1	62	8	YVKRTSIF		1787
HPV56	L1	62	9	YVKRTSIFY		1788
HPV56	L1	438	8	ALWPVYFF		1789
HPV56	L2	246	11	ATLYSADNPLF		1790
HPV56	L2	406	11	DIVLPTGPSTW		1791
HPV56	L2	30	11	DVNKIEQKTW		1792
HPV56	L2	429	9	DVYIQGSF		1793
HPV56	L2	114	9	ESGAGIPNF		1794

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A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV56	L2	287	10	FTTRRGVRF		1795
HPV56	L2	118	11	GIPNFTSGGF		1796
HPV56	L2	64	8	GSGGRAGY		1797
HPV56	L2	434	10	GSSFALWPVY		1798
HPV56	L2	434	11	GSSFALWPVYF		1799
HPV56	L2	258	8	GDTSLAF		1800
HPV56	L2	62	10	GTSGGRAGY		1801
HPV56	L2	310	10	GTQIGARVHY		1802
HPV56	L2	310	11	GTQIGARVHYH		1803
HPV56	L2	269	8	GVAPDPDF		1804
HPV56	L2	372	11	ILPKPSTLSF		1805
HPV56	L2	190	11	HSYEEIPMQTF		1806
HPV56	L2	44	8	ILQWGSF		1807
HPV56	L2	44	10	ILQWGSIFTY		1808
HPV56	L2	44	11	ILQWGSIFTYF		1809
HPV56	L2	210	9	ISSTPIPGF		1810
HPV56	L2	182	11	ISTPTSGIHSY		1811
HPV56	L2	279	9	IVALHRPAF		1812
HPV56	L2	407	10	IVLPTGPSTW		1813
HPV56	L2	43	9	KILQWGSF		1814
HPV56	L2	43	11	KILQWGSIFTY		1815
HPV56	L2	38	10	KTWADKILQW		1816
HPV56	L2	337	8	LLSANNF		1817
HPV56	L2	338	11	LSANNSFDGLY		1818
HPV56	L2	248	9	LVSADNPLF		1819
HPV56	L2	278	10	NIVALHRPAF		1820
HPV56	L2	342	10	NSFDGLYDIY		1821
HPV56	L2	388	10	NVTAPLGNVW		1822
HPV56	L2	395	8	NVWETPFY		1823
HPV56	L2	374	9	PIKPSTLSF		1824
HPV56	L2	209	10	PISTPIPGF		1825
HPV56	L2	392	10	PLGNVWETPF		1826
HPV56	L2	392	11	PLGNVWETPFY		1827
HPV56	L2	336	9	PLLSANNF		1828
HPV56	L2	267	10	PSGVAAPDPDF		1829
HPV56	L2	410	9	PTGPSTWPF		1830
HPV56	L2	185	8	PTSGIHSY		1831
HPV56	L2	312	8	QIGARVHY		1832
HPV56	L2	312	9	QIGARVIHY		1833
HPV56	L2	312	10	QIGARVIYY		1834
HPV56	L2	421	11	QSPYDVTHDVY		1835
HPV56	L2	233	9	QVKVTDPAF		1836
HPV56	L2	220	8	RIAAPRLY		1837
HPV56	L2	435	9	SSFALWPVY		1838
HPV56	L2	435	10	SSFALWPVYF		1839
HPV56	L2	435	11	SSFALWPVYFF		1840

Table VII
A01 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*0101	Seq. Id. No.
HPV56	L2	153	10	SSTHITNPLF		1841
HPV56	L2	211	8	SSTPIPGF		1842
HPV56	L2	154	9	STHITNPLF		1843
HPV56	L2	183	10	STPTSGHYS		1844
HPV56	L2	414	11	STWPFVQSPY		1845
HPV56	L2	247	10	TLVSADNPLF		1846
HPV56	L2	288	9	TTRGGVRF		1847
HPV56	L2	112	11	VIESGAGIPNF		1848
HPV56	L2	408	9	VLPTGPSTW		1849
HPV56	L2	408	11	VLPTGPSTWPF		1850
HPV56	L2	249	8	VSADNPLF		1851
HPV56	L2	152	11	VSSTHITNPLF		1852
HPV56	L2	389	9	VTAPLGNVW		1853
HPV56	L2	31	10	VVNKIEQKTW		1854
HPV56	L2	431	10	YIQSSFALW		1855

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	AAALYWYKT	316	9						1856
HPV16	E1	AAALYWYKTGI	316	11						1857
HPV16	E1	AAFGLTPSI	239	9	0.0012					1858
HPV16	E1	AAFGLTPSIA	239	10						1859
HPV16	E1	AAALYWYKT	317	8						1860
HPV16	E1	AAALYWYKTGI	317	10						1861
HPV16	E1	AAMLAKFKEL	205	10						1862
HPV16	E1	AANTGKSL	478	8						1863
HPV16	E1	AANTGKSLFGM	478	11						1864
HPV16	E1	AICIEKQSR	112	10						1865
HPV16	E1	AICIEKQSR	112	11						1866
HPV16	E1	AICIEKQSR	539	9	0.0270					1867
HPV16	E1	ALDGNLVSM	539	11						1868
HPV16	E1	ALDGNLVSM	539	11						1869
HPV16	E1	ALDGNLVSM	69	8						1870
HPV16	E1	ALDGNLVSM	69	8	0.0062					1871
HPV16	E1	ALDGNLVSM	459	9	0.0019					1872
HPV16	E1	ALDGNLVSM	318	9	0.0150					1873
HPV16	E1	ALDGNLVSM	206	9						1874
HPV16	E1	ALDGNLVSM	73	10						1875
HPV16	E1	ALDGNLVSM	73	11						1876
HPV16	E1	ALDGNLVSM	380	10						1877
HPV16	E1	ALDGNLVSM	406	10						1878
HPV16	E1	ALDGNLVSM	524	9						1879
HPV16	E1	ALDGNLVSM	82	10						1880
HPV16	E1	ALDGNLVSM	82	11						1881
HPV16	E1	ALDGNLVSM	23	10						1882
HPV16	E1	ALDGNLVSM	23	11						1883
HPV16	E1	ALDGNLVSM	405	11						1884
HPV16	E1	ALDGNLVSM	237	8						1885
HPV16	E1	ALDGNLVSM	237	11						1886
HPV16	E1	ALDGNLVSM	114	8						1887
HPV16	E1	ALDGNLVSM	114	9						1888
HPV16	E1	ALDGNLVSM	472	8						1889
HPV16	E1	ALDGNLVSM	472	10						1890
HPV16	E1	ALDGNLVSM	259	9	0.0760					1891
HPV16	E1	ALDGNLVSM	259	10	0.0032					1892
HPV16	E1	ALDGNLVSM	304	9						1893
HPV16	E1	ALDGNLVSM	187	8						1894
HPV16	E1	ALDGNLVSM	187	9						1895
HPV16	E1	ALDGNLVSM	187	11						1896
HPV16	E1	ALDGNLVSM	353	8	0.0029					1897
HPV16	E1	ALDGNLVSM	353	9						1898
HPV16	E1	ALDGNLVSM	101	10						1899
HPV16	E1	ALDGNLVSM	640	9						1900
HPV16	E1	ALDGNLVSM	640	10						1901
HPV16	E1	ALDGNLVSM	299	8						1902
HPV16	E1	ALDGNLVSM	299	9						1903

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	DAKIGMLDDA	515	10						1902
HPV16	E1	DAKIGMLDDAT	515	11						1903
HPV16	E1	DATVPCWNYI	523	10						1904
HPV16	E1	DAVQVLKRKYL	81	11						1905
HPV16	E1	DISGCVDDNI	97	10						1906
HPV16	E1	DIVDDSEI	368	8						1907
HPV16	E1	DIVDDSEIA	368	9						1908
HPV16	E1	DTGEDLVDFI	43	10						1909
HPV16	E1	DTGEDLVDFIV	43	11						1910
HPV16	E1	DTNSNASEA	384	8						1911
HPV16	E1	DTNSNASAFI	384	10						1912
HPV16	E1	DTPEWQRQT	335	10						1913
HPV16	E1	DTPEWQRQTV	335	11						1914
HPV16	E1	DVKHRPLV	548	8						1915
HPV16	E1	DVKHRPLVQL	548	10						1916
HPV16	E1	EAKQHRDA	75	8						1917
HPV16	E1	EAKQHRDAV	75	9						1918
HPV16	E1	EAKQHRDAVQV	75	11						1919
HPV16	E1	EAVVEKKT	22	8						1920
HPV16	E1	EAVVEKKTGDA	22	11						1921
HPV16	E1	EIAYKYAQL	374	9						1922
HPV16	E1	EIAYKYAQLA	374	10						1923
HPV16	E1	ELSQMVQWA	356	9	0.0003					1924
HPV16	E1	ELYGVSFSEL	213	10						1925
HPV16	E1	ELYGVSFSELV	213	11						1926
HPV16	E1	ETAHALFT	65	8						1927
HPV16	E1	ETAHALFTA	65	9						1928
HPV16	E1	ETETAHAL	63	8						1929
HPV16	E1	ETETAHALFT	63	10						1930
HPV16	E1	ETETAHALFTA	63	11						1931
HPV16	E1	ETIEKLKSL	288	10						1932
HPV16	E1	ETIEKLKSKLL	288	11						1933
HPV16	E1	ETQQMLQV	140	8						1934
HPV16	E1	EVETQQML	138	8						1935
HPV16	E1	EVETQQMLQV	138	10						1936
HPV16	E1	EYGDTPEWI	331	10						1937
HPV16	E1	FIVNDNDYL	51	9						1938
HPV16	E1	FIVNDNDYLT	51	10						1939
HPV16	E1	FLKSNQA	392	8						1940
HPV16	E1	FLKSNQAQKI	392	10	0.0011					1941
HPV16	E1	FLKSNQAQKIV	392	11						1942
HPV16	E1	FLQGIKKNCI	463	11						1943
HPV16	E1	FLQGSVICFV	493	10	0.2300					1944
HPV16	E1	FLRYQGVFEM	445	10						1945
HPV16	E1	FLTALKRFL	456	9						1946
HPV16	E1	FMSFLTAL	453	8						1947

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	FVNSKSHFWL	501	10	0.0015					1948
HPV16	E1	GAANTGKSL	477	9	0.0003					1949
HPV16	E1	GIPKKNCI	466	8						1950
HPV16	E1	GIPKKNCIL	466	9						1951
HPV16	E1	GIPKKNCILL	466	10						1952
HPV16	E1	GISNISEV	325	8						1953
HPV16	E1	GLTPSIADSI	242	10	0.0002					1954
HPV16	E1	GMLDDATV	519	8						1955
HPV16	E1	GMSLMKFL	487	8						1956
HPV16	E1	GMVVLLLV	272	8						1957
HPV16	E1	GTDSRWPLY	571	9						1958
HPV16	E1	GTGCNGWFYV	12	10	0.0006					1959
HPV16	E1	GTNGEGT	6	8						1960
HPV16	E1	GVEFMSFL	450	8						1961
HPV16	E1	GVEFMSFLT	450	9						1962
HPV16	E1	GVEFMSFLTA	450	10						1963
HPV16	E1	GVEFMSFLTAL	450	11						1964
HPV16	E1	GVSERHTI	179	8						1965
HPV16	E1	GVSERHTICQT	179	11						1966
HPV16	E1	GVSFSELY	216	8						1967
HPV16	E1	HALFTAQEA	68	9						1968
HPV16	E1	HIQLACSWGGM	263	11						1969
HPV16	E1	HTICQTPL	184	8						1970
HPV16	E1	HTICQTPLT	184	9						1971
HPV16	E1	HTICQTPLTNI	184	11						1972
HPV16	E1	IAAFGLTPSI	238	10	0.0002					1973
HPV16	E1	IAAFGLTPSIA	238	11						1974
HPV16	E1	IADSIKTL	247	8						1975
HPV16	E1	IADSIKTL	247	9						1976
HPV16	E1	IADSIKTL	247	9						1977
HPV16	E1	IAYKYAQL	375	8						1978
HPV16	E1	IAYKYAQLA	375	9						1979
HPV16	E1	IAYKYAQLADT	375	11						1980
HPV16	E1	ILLYGAANT	473	9						1981
HPV16	E1	ILNVLKTSNA	194	10						1982
HPV16	E1	IQSLACSWGGM	264	10						1983
HPV16	E1	IQSLACSWGGMV	264	11						1984
HPV16	E1	ITSNINAGT	564	9						1985
HPV16	E1	IVDDSEIA	369	8						1986
HPV16	E1	IVKDCATM	401	8						1987
HPV16	E1	IVMFLRYQGV	442	10	0.0024					1988
HPV16	E1	IVNDNDYL	52	8						1989
HPV16	E1	IVNDNDYLT	52	9						1990
HPV16	E1	IVNDNDYLTQA	52	11						1991
HPV16	E1	KAAMLAKFKEL	204	11						1992
HPV16	E1	KAICIEKQSR	111	11						1993
HPV16	E1	KIGMLDDA	517	8						

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	KIGMLDDAT	517	9						1994
HPV16	E1	KIGMLDDATV	517	10						1995
HPV16	E1	KIVKDCAT	400	8						1996
HPV16	E1	KIVKDCATM	400	9						1997
HPV16	E1	KLLCVSPM	296	8						1998
HPV16	E1	KLLCVSPMCM	296	10	0.0130					1999
HPV16	E1	KLLCVSPMCM	296	11						2000
HPV16	E1	KLLCVSPMCM	292	9	0.0510					2001
HPV16	E1	KLLSKLLCV	311	8						2002
HPV16	E1	KLRSTAAA	311	9	0.0003					2003
HPV16	E1	KLRSTAAAL	311	9						2004
HPV16	E1	KQHRDAVQV	77	9						2005
HPV16	E1	KQHRDAVQVL	77	10						2006
HPV16	E1	KQMSMSQWI	418	9						2007
HPV16	E1	KQSKAAKRR	117	10						2008
HPV16	E1	KTGISNISEV	323	10						2009
HPV16	E1	KTLLQYCYL	252	9						2010
HPV16	E1	KTLLQYCYLYL	252	11						2011
HPV16	E1	KTSNAKAA	199	8						2012
HPV16	E1	KTSNAKAAAM	199	9						2013
HPV16	E1	KTSNAKAAAML	199	10						2014
HPV16	E1	KTSNAKAAAML	199	11						2015
HPV16	E1	LACSWGMMV	267	8	0.0006					2016
HPV16	E1	LACSWGMMV	267	9						2017
HPV16	E1	LACSWGMMVL	267	10						2018
HPV16	E1	LACSWGMMVLL	267	11						2019
HPV16	E1	LADAKIGM	513	8						2020
HPV16	E1	LADAKIGML	513	9						2021
HPV16	E1	LADTNSNA	382	8						2022
HPV16	E1	LADTNSNASE	382	10						2023
HPV16	E1	LAKFKELYGV	208	10						2024
HPV16	E1	LITSNINA	563	8						2025
HPV16	E1	LITSNINAGT	563	10						2026
HPV16	E1	LLCVSPMCM	297	9	0.0008					2027
HPV16	E1	LLCVSPMCM	297	10						2028
HPV16	E1	LLCVSPMCM	297	11						2029
HPV16	E1	LLCVSPMCM	297	11	0.0022					2030
HPV16	E1	LLITSNINA	562	9						2031
HPV16	E1	LLITSNINAGT	562	11						2032
HPV16	E1	LLQYCYLYL	254	9	0.1000					2033
HPV16	E1	LLQYCYLYLHI	254	11						2034
HPV16	E1	LLSKLLCV	293	8						2035
HPV16	E1	LLSKLLCVSPM	293	11						2036
HPV16	E1	LLYGAANT	474	8						2037
HPV16	E1	LMKFLQGSV	490	9	0.0007					2038
HPV16	E1	LMKFLQGSVI	490	10	0.0003					2039
HPV16	E1	LQIPKKNCI	464	10						2040
HPV16	E1	LQIPKKNCIL	464	11						2041

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	LQGSVICFV	494	9						2040
HPV16	E1	LQHSFNDCT	346	9						2041
HPV16	E1	LQPLADAKI	510	9						2042
HPV16	E1	LQPLADAKIGM	510	11						2043
HPV16	E1	LQYCYLYL	255	8						2044
HPV16	E1	LQYCYLYLHI	255	10						2045
HPV16	E1	LQVEGRHET	145	9						2046
HPV16	E1	LQVEGRHETET	145	11						2047
HPV16	E1	LTALKRFL	457	8						2048
HPV16	E1	LTALKRFLQGI	457	11						2049
HPV16	E1	LTNLNLVL	191	8						2050
HPV16	E1	LTNLNLVLKT	191	10						2051
HPV16	E1	LTPSIADSI	243	9						2052
HPV16	E1	LTPSIADSIKT	243	11						2053
HPV16	E1	LTQAETET	59	8						2054
HPV16	E1	LTQAETETA	59	9						2055
HPV16	E1	LTQAETETAHA	59	11						2056
HPV16	E1	LVQLKCPPL	554	9	0.0003					2057
HPV16	E1	LVQLKCPPL	554	10						2058
HPV16	E1	LVQLKCPPLLI	554	11						2059
HPV16	E1	LVRPFKSNKST	222	11						2060
HPV16	E1	LVSMDEVKHRPL	544	11						2061
HPV16	E1	LVSPLSDI	91	8						2062
HPV16	E1	MIPEPKLRST	306	10						2063
HPV16	E1	MIPEPKLRSTA	306	11						2064
HPV16	E1	MLAKFKEL	207	8						2065
HPV16	E1	MLAKFKELYGV	207	11						2066
HPV16	E1	MLQVEGRHET	144	10						2067
HPV16	E1	MMIEPPKL	305	8						2068
HPV16	E1	MMIEPPKLKLRST	305	11						2069
HPV16	E1	MVQWAYDNDI	360	10	0.0001					2070
HPV16	E1	MVQWAYDNDIV	360	11						2071
HPV16	E1	NAGTDSRWPYL	569	11						2072
HPV16	E1	NAKAAMLA	202	8						2073
HPV16	E1	NALDGNLV	538	8						2074
HPV16	E1	NALDGNLVSM	538	10						2075
HPV16	E1	NILNLVLT	193	8						2076
HPV16	E1	NILNLVLTNA	193	11						2077
HPV16	E1	NISEVYGD	328	9						2078
HPV16	E1	NISPRKA	105	8						2079
HPV16	E1	NISPRLKA	105	9						2080
HPV16	E1	NISPRLKAICI	105	11						2081
HPV16	E1	NLRNALDGNL	535	10						2082
HPV16	E1	NLRNALDGNLV	535	11						2083
HPV16	E1	NTEVETQQM	136	9						2084
HPV16	E1	NTEVETQQML	136	10						2085

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	NTGKSLFGM	480	9						2086
HPV16	E1	NTGKSLFGMSL	480	11						2087
HPV16	E1	NVLKTSNA	196	8						2088
HPV16	E1	NVLKTSNAKA	196	10						2089
HPV16	E1	NVLKTSNAKAA	196	11						2090
HPV16	E1	PAGTNGEET	4	10						2091
HPV16	E1	PLADAKIGM	512	9						2092
HPV16	E1	PLADAKIGML	512	10						2093
HPV16	E1	PLLITSNI	561	8						2094
HPV16	E1	PLLITSNINA	561	10						2095
HPV16	E1	PLSDISGCV	94	9						2096
HPV16	E1	PLTNILNV	190	8						2097
HPV16	E1	PLTNILNVL	190	9						2098
HPV16	E1	PLTNILNVLKT	190	11						2099
HPV16	E1	PLVQLKCPPL	553	10						2100
HPV16	E1	PLVQLKCPPLL	553	11						2101
HPV16	E1	PMCMMIEPPKL	302	11						2102
HPV16	E1	PTFKCVSGQNT	636	11						2103
HPV16	E1	QAETETAHA	61	9						2104
HPV16	E1	QAETETAHAL	61	10						2105
HPV16	E1	QAKIVKDCA	398	9						2106
HPV16	E1	QAKIVKDCAT	398	10						2107
HPV16	E1	QAKIVKDCATM	398	11						2108
HPV16	E1	QIVMFLRYQGV	441	11						2109
HPV16	E1	QLADTNSNA	381	9	0.0003					2110
HPV16	E1	QLADTNSNASE	381	11						2111
HPV16	E1	QLKCPPLL	556	8						2112
HPV16	E1	QLKCPPLLI	556	9	0.0049					2113
HPV16	E1	QLKCPPLLIT	556	10						2114
HPV16	E1	QMLQVEGRHET	143	11						2115
HPV16	E1	QMSMSQWI	419	8						2116
HPV16	E1	QMVQWAYDNDI	359	11						2117
HPV16	E1	QQYCLYLHI	256	9						2118
HPV16	E1	QTPLTNIL	188	8						2119
HPV16	E1	QTPLTNILNV	188	10	0.0002					2120
HPV16	E1	OTPLTNILNVL	188	11						2121
HPV16	E1	QVEGRHET	146	8						2122
HPV16	E1	QVEGRHETET	146	10						2123
HPV16	E1	QVLKRRKYL	84	8						2124
HPV16	E1	QVLKRRKYL	84	9	0.0003					2125
HPV16	E1	RAEKKQMSM	414	9						2126
HPV16	E1	RTWSRLSL	615	8						2127
HPV16	E1	RVDGDDGWKQI	432	11						2128
HPV16	E1	SAFLKSNQA	390	10						2129
HPV16	E1	SIADSIKT	246	8						2130
HPV16	E1	SIADSIKTL	246	9						2131

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV16	E1	SIADSIKTLT	246	10						2132
HPV16	E1	SIKTLIQYCL	250	11						2133
HPV16	E1	SLACSWGGM	266	8						2134
HPV16	E1	SLACSWGMMV	266	9	0.0820					2135
HPV16	E1	SLACSWGMMV	266	10	0.1300					2136
HPV16	E1	SLACSWGMMVL	266	11						2137
HPV16	E1	SLFGMSLM	484	8						2138
HPV16	E1	SLFGMSLMKFL	484	11						2139
HPV16	E1	SLMKFLQGSV	489	10	0.0250					2140
HPV16	E1	SLMKFLQGSVI	489	11						2141
HPV16	E1	SLPTFKCV	634	8						2142
HPV16	E1	SMDVKHRPL	546	9						2143
HPV16	E1	SMDVKHRPLV	546	10						2144
HPV16	E1	SQAKIVKDCV	397	10						2145
HPV16	E1	SQAKIVKDCAT	397	11						2146
HPV16	E1	SQWKYRCDRV	423	11						2147
HPV16	E1	STAAALYWYKT	314	11						2148
HPV16	E1	STCCDWCI	231	8						2149
HPV16	E1	STCCDWCIA	231	9						2150
HPV16	E1	STCCDWCIAA	231	10						2151
HPV16	E1	TAAALYWYKT	315	10						2152
HPV16	E1	TAHALFTA	66	8						2153
HPV16	E1	TAHALFTAQEA	66	11						2154
HPV16	E1	TALKRFLQGI	458	10						2155
HPV16	E1	TAQEAQKHRDA	72	11						2156
HPV16	E1	TICQTPLT	185	8						2157
HPV16	E1	TICQTPLTNI	185	10						2158
HPV16	E1	TICQTPLTNIL	185	11						2159
HPV16	E1	TIEKLLSKL	289	9						2160
HPV16	E1	TIEKLLSKLL	289	10						2161
HPV16	E1	TLLQYCYL	253	8						2162
HPV16	E1	TLLQYCYCLYL	253	10	0.6500					2163
HPV16	E1	TMCRRHYKRA	407	9	0.0003					2164
HPV16	E1	TQAEETA	60	8						2165
HPV16	E1	TQAEETATAHA	60	10						2166
HPV16	E1	TQAEETATAHAL	60	11						2167
HPV16	E1	TVLQHSFNDCT	344	11						2168
HPV16	E1	TVPCWNYI	525	8						2169
HPV16	E1	VLKRKYL	85	8						2170
HPV16	E1	VLKRKYLVSPL	85	11						2171
HPV16	E1	VLKTSNAKA	197	9						2172
HPV16	E1	VLKTSNAKAA	197	10						2173
HPV16	E1	VLKTSNAKAAM	197	11						2174
HPV16	E1	VLQHSFNDCT	345	10						2175
HPV16	E1	VMFLRYQGV	443	9	0.0140					2176
HPV16	E1	VQLKCPPL	555	8						2177

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E1	VQLKCPPLL	555	9						2178
HPV16	E1	VQLKCPPLLI	555	10						2179
HPV16	E1	VQLKCPPLIT	555	11						2180
HPV16	E1	VQLKRKYL	83	9						2181
HPV16	E1	VQLKRKYL	83	10						2182
HPV16	E1	VQVLRKYL	361	9						2183
HPV16	E1	VQWAYDNDI	361	10						2184
HPV16	E1	VQWAYDNDIV	361	10						2185
HPV16	E1	VVEKKTGDA	24	9						2186
HPV16	E1	VVEKKTGDIV	24	10						2187
HPV16	E1	WAYDNDIV	363	8						2188
HPV16	E1	WIKRYCDRV	425	9	0.0003					2189
HPV16	E1	WIKRQTVL	339	8						2190
HPV16	E1	WLQPLADA	509	8						2191
HPV16	E1	WLQPLADAKI	509	10						2192
HPV16	E1	YQLADTNSNA	379	11						2193
HPV16	E1	YIDNLRNA	531	9						2194
HPV16	E1	YIDNLRNAL	531	10						2195
HPV16	E1	YLIHQSLA	261	8						2196
HPV16	E1	YLNRLV	578	8						2197
HPV16	E1	YLNRLVVFT	578	10						2198
HPV16	E1	YLTQAETET	58	9						2199
HPV16	E1	YLTQAETETA	58	10						2200
HPV16	E1	YLVSPLSDI	90	9	0.0200					2201
HPV16	E1	YQGVFMSFL	448	10						2202
HPV16	E1	YQGVFMSFLT	448	11						2203
HPV16	E1	YVEAVVEKKT	20	10						2204
HPV16	E2	AATHKAV	220	8						2205
HPV16	E2	AATHKAVA	220	9						2206
HPV16	E2	AATHKAVL	220	10						2207
HPV16	E2	AIELQLTL	72	8						2208
HPV16	E2	AIELQLTLET	72	10						2209
HPV16	E2	AIELQLTLETI	72	11						2210
HPV16	E2	AIYKAREM	41	9						2211
HPV16	E2	ALGTEETQT	228	9						2212
HPV16	E2	ALGTEETQTT	228	10						2213
HPV16	E2	ALGTEETQTTI	228	11						2214
HPV16	E2	ALQAIQL	69	9						2215
HPV16	E2	ALQAIQLTL	69	10						2216
HPV16	E2	ALQAIQLTL	69	11						2217
HPV16	E2	ATHKAVA	221	8						2218
HPV16	E2	ATHKAVL	221	9						2219
HPV16	E2	ATHKAVLGT	221	11						2220
HPV16	E2	AVALGTEET	226	9						2221
HPV16	E2	AVALGTEETQT	226	11						2222
HPV16	E2	AVSKNKAL	63	8						2223
HPV16	E2	AVSKNKALQA	63	10						

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A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E2	AVSKNKALQAI	63	11						2224
HPV16	E2	AVSSTWHWT	314	9						2225
HPV16	E2	CAIYYKAREM	40	10						2226
HPV16	E2	CIKKHGYT	109	8						2227
HPV16	E2	CIKKHGYTV	109	9						2228
HPV16	E2	CIKKHGYTVEV	109	11						2229
HPV16	E2	CLRYRFKKHCT	300	11						2230
HPV16	E2	CQRLNVQDKI	5	11						2231
HPV16	E2	CTLYTAVSST	309	10						2232
HPV16	E2	DAEKYSKNKV	174	10						2233
HPV16	E2	DANTLKCL	294	8						2234
HPV16	E2	DICNTMHT	124	9						2235
HPV16	E2	DQFLSQVKI	344	9						2236
HPV16	E2	DTGNPCHT	246	8						2237
HPV16	E2	DTGNPCHT	246	9						2238
HPV16	E2	DTGNPCHTTL	246	11						2239
HPV16	E2	DVSLVLYL	96	8						2240
HPV16	E2	DVSLVLYLT	96	9						2241
HPV16	E2	DVSLVLYLTA	96	10						2242
HPV16	E2	EASVTVEGQV	142	11						2243
HPV16	E2	EIRQHLLA	209	8						2244
HPV16	E2	ELQLTLET	74	8						2245
HPV16	E2	ELQLTLETI	74	9						2246
HPV16	E2	EMGFKHINHQV	48	11						2247
HPV16	E2	ETLCQRLNV	2	9						2248
HPV16	E2	EVHAGGQV	185	8						2249
HPV16	E2	EVHAGGQVI	185	9						2250
HPV16	E2	EVHAGGQVIL	185	10						2251
HPV16	E2	EVQFDGDI	118	8						2252
HPV16	E2	EVQFDGDICNT	118	11						2253
HPV16	E2	EVSSPEII	204	8						2254
HPV16	E2	EVYLTAPT	100	8						2255
HPV16	E2	EVYLTAPTGC	100	11						2256
HPV16	E2	FLSQVKIPKT	346	10						2257
HPV16	E2	FLSQVKIPKTI	346	11						2258
HPV16	E2	FVQFKDDA	168	8						2259
HPV16	E2	GLYYVHEGI	156	9						2260
HPV16	E2	GLYYVHEGIRT	156	11						2261
HPV16	E2	GQVDYYGL	150	8						2262
HPV16	E2	GQVDYYGLYYV	150	11						2263
HPV16	E2	GQVILCPT	190	8						2264
HPV16	E2	GQVILCPTSV	190	10						2265
HPV16	E2	GTEETQTT	230	8						2266
HPV16	E2	GTEETQTTI	230	9						2267
HPV16	E2	HAGGQVIL	187	8						2268
HPV16	E2	HAGGQVILCPT	187	11						2269

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV16	E2	HIDYWKHM	29	8						2270
HPV16	E2	HIDYWKHML	29	10						2271
HPV16	E2	HINHQVVP	53	9						2272
HPV16	E2	HINHQVVPTL	53	10						2273
HPV16	E2	HINHQVVPTLA	53	11						2274
HPV16	E2	HIYICEEA	136	8						2275
HPV16	E2	HIYICEEASV	136	10						2276
HPV16	E2	HIYICEEASVT	136	11						2277
HPV16	E2	HLANHPAA	214	8						2278
HPV16	E2	HLANHPAAT	214	9						2279
HPV16	E2	HLANHPAATHT	214	11						2280
HPV16	E2	HLKGDANT	290	8						2281
HPV16	E2	HLKGDANTL	290	9						2282
HPV16	E2	HMRLECAI	35	8						2283
HPV16	E2	HQVVPTLA	56	8						2284
HPV16	E2	HQVVPTLAV	56	9						2285
HPV16	E2	HTKAVALGT	223	9						2286
HPV16	E2	HTTKLLHRDSV	252	11						2287
HPV16	E2	IIRQLANHPA	210	11						2288
HPV16	E2	ILTHYENDST	15	10						2289
HPV16	E2	IQRPRSEPT	238	10						2290
HPV16	E2	ITVSTGFMSI	356	8						2291
HPV16	E2	ITVSTGFMSI	356	10						2292
HPV16	E2	IVHLKGDGA	288	8						2293
HPV16	E2	IVHLKGDANT	288	10						2294
HPV16	E2	IVHLKGDANTL	288	11						2295
HPV16	E2	KALQAIEL	68	8						2296
HPV16	E2	KALQAIELQL	68	10						2297
HPV16	E2	KALQAIELQLT	68	11						2298
HPV16	E2	KAREMGFKHI	45	10						2299
HPV16	E2	KAVALGTEET	225	10						2300
HPV16	E2	KILTHYENDST	14	11						2301
HPV16	E2	KIPKTIIV	351	8						2302
HPV16	E2	KIPKTIIVST	351	10						2303
HPV16	E2	KLLHRDSV	255	8						2304
HPV16	E2	KLLHRDSVDSA	255	11						2305
HPV16	E2	KTITVSTGFM	354	10						2306
HPV16	E2	KVWEVHAGGV	182	11						2307
HPV16	E2	LANHPAAT	215	8						2308
HPV16	E2	LANHPAATHT	215	10						2309
HPV16	E2	LAVSKNKA	62	8						2310
HPV16	E2	LAVSKNKAL	62	9						2311
HPV16	E2	LAVSKNKALQA	62	11						2312
HPV16	E2	LLHRDSVDSA	256	10						2313
HPV16	E2	LOAIELQL	70	8						2314
HPV16	E2	LOAIELQLT	70	9						2315

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E2	LQAIQLTL	70	10						2316
HPV16	E2	LQDVSLEV	94	8						2317
HPV16	E2	LQDVSLEVYL	94	10						2318
HPV16	E2	LQDVSLEVYLT	94	11						2319
HPV16	E2	LQLTLETI	75	8						2320
HPV16	E2	LTAPTGCI	103	8						2321
HPV16	E2	LTHYENDST	16	9						2322
HPV16	E2	LTHYENDSTD	16	11						2323
HPV16	E2	NTMHYTNWT	127	9						2324
HPV16	E2	NTMHYTNWTHI	127	11						2325
HPV16	E2	NTPIVHL	284	8						2326
HPV16	E2	NVCQDKIL	9	8						2327
HPV16	E2	NVCQDKILT	9	9						2328
HPV16	E2	NVKHKSAL	325	8						2329
HPV16	E2	NVKHKSALV	325	9						2330
HPV16	E2	NVKHKSALVT	325	10						2331
HPV16	E2	NVKHKSALVTL	325	11						2332
HPV16	E2	PAATHTKA	219	8						2333
HPV16	E2	PAATHTKAV	219	9						2334
HPV16	E2	PAATHTKAVA	219	10						2335
HPV16	E2	PAATHTKAVAL	219	11						2336
HPV16	E2	PIVHLKGD	287	9						2337
HPV16	E2	PIVHLKGDANT	287	11						2338
HPV16	E2	PTGCIKKHGYT	106	11						2339
HPV16	E2	PTLAVSKNKA	60	10						2340
HPV16	E2	PTLAVSKNKAL	60	11						2341
HPV16	E2	PTSVFSSNEV	196	10						2342
HPV16	E2	QAIQLTL	71	8						2343
HPV16	E2	QAIQLTL	71	9						2344
HPV16	E2	QAIQLTLTLET	71	11						2345
HPV16	E2	QVDYGYGLYYV	151	10						2346
HPV16	E2	QVILCPTSV	191	9						2347
HPV16	E2	QVKIPKTI	349	8						2348
HPV16	E2	QVKIPKTI	349	9						2349
HPV16	E2	QVKIPKTI	349	10						2350
HPV16	E2	QVPTLAV	57	8						2351
HPV16	E2	RINCNSNT	278	8						2352
HPV16	E2	RINCNSNT	278	9						2353
HPV16	E2	RINCNSNTPI	278	11						2354
HPV16	E2	RLECAIYYKA	37	10						2355
HPV16	E2	RLNVCQDKI	7	9						2356
HPV16	E2	RLNVCQDKIL	7	10						2357
HPV16	E2	RLNVCQDKILT	7	11						2358
HPV16	E2	RQHLANHPA	212	9						2359
HPV16	E2	RQHLANHPAA	212	10						2360
HPV16	E2	RQHLANHPAAT	212	11						2361

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E2	RTYFQFKDDA	165	11						2362
HPV16	E2	SLEVYLTAA	98	8						2363
HPV16	E2	SLEVYLTAPT	98	10						2364
HPV16	E2	SQKIPKT	348	8						2365
HPV16	E2	SQKIPKTI	348	9						2366
HPV16	E2	SQKIPKTIIT	348	10						2367
HPV16	E2	SQKIPKTIIV	348	11						2368
HPV16	E2	SQYSNEKWT	85	9						2369
HPV16	E2	SQYSNEKWTL	85	10						2370
HPV16	E2	STDLRDHI	23	8						2371
HPV16	E2	STWHWTGHN	317	10						2372
HPV16	E2	SVDSAPIL	261	8						2373
HPV16	E2	SVDSAPILT	261	9						2374
HPV16	E2	SVDSAPILTA	261	10						2375
HPV16	E2	SVFSSNEV	198	8						2376
HPV16	E2	SVTVVEGV	144	9						2377
HPV16	E2	TAFNSSHKGR	269	11						2378
HPV16	E2	TAVSSTWHWT	313	10						2379
HPV16	E2	TQRPSEPDT	237	11						2380
HPV16	E2	TITVSTGFM	355	9						2381
HPV16	E2	TITVSTGFMSI	355	11						2382
HPV16	E2	TLAVSKNKA	61	9						2383
HPV16	E2	TLAVSKNKAL	61	10						2384
HPV16	E2	TLCQRLNV	3	8						2385
HPV16	E2	TLQDVSLEV	93	9						2386
HPV16	E2	TLQDVSLEVYL	93	11						2387
HPV16	E2	TLYTAVSST	310	9						2388
HPV16	E2	TMHYTNWT	128	8						2389
HPV16	E2	TMHYTNWTHI	128	10						2390
HPV16	E2	TKLLHRDSV	253	10						2391
HPV16	E2	TPVHLKGDA	285	11						2392
HPV16	E2	TVFVQFDGDI	116	10						2393
HPV16	E2	TVSTGFMSI	357	9						2394
HPV16	E2	VALGTEET	227	8						2395
HPV16	E2	VALGTEETQT	227	10						2396
HPV16	E2	VALGTEETQTT	227	11						2397
HPV16	E2	VILCPTSV	192	8						2398
HPV16	E2	VQFDGDCICNT	119	10						2399
HPV16	E2	VQFDGDCICNTM	119	11						2400
HPV16	E2	VTVVEGV	145	8						2401
HPV16	E2	VVEGVQDYGL	147	11						2402
HPV16	E2	WORDQFLSQV	341	10						2403
HPV16	E2	WTGHNVKIKSA	321	11						2404
HPV16	E2	WTHYICEEA	134	10						2405
HPV16	E2	WTLQDVSL	92	8						2406
HPV16	E2	WTLQDVSLEV	92	10						2407

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E2	YICEASV	138	8						2408
HPV16	E2	YICEASVT	138	9						2409
HPV16	E2	YICEASVTV	138	10						2410
HPV16	E2	YICEASVTVV	138	11						2411
HPV16	E2	YLTAPTGC	102	9						2412
HPV16	E2	YTAVSSTWHWT	312	11						2413
HPV16	E2	YTNWTHIY	131	9						2414
HPV16	E2	YTVVEVQFDGDI	115	11						2415
HPV16	E2	YVHEGIRT	159	8						2416
HPV16	E2	YVHEGIRTYFV	159	11						2417
HPV16	E2	AASAFRCFI	53	9						2418
HPV16	E5	AASAFRCFIV	53	10						2419
HPV16	E5	CLLRPLL	26	8						2420
HPV16	E5	CLLRPPLL	26	9						2421
HPV16	E5	CLLRPPLLSV	26	11						2422
HPV16	E5	CVCLLRPL	24	9						2423
HPV16	E5	CVCLLRPPLL	24	10						2424
HPV16	E5	CVCLLRPLLL	24	11						2425
HPV16	E5	CVLLCVCL	20	8						2426
HPV16	E5	CVLLCVCLL	20	9						2427
HPV16	E5	CVLLCVCLLI	20	10						2428
HPV16	E5	DTASTTLL	5	8						2429
HPV16	E5	DTASTTLLA	5	9						2430
HPV16	E5	FIVYIIFV	60	8						2431
HPV16	E5	FIVYIIFVYI	60	10						2432
HPV16	E5	FLIHTHARFL	72	10						2433
HPV16	E5	FLIHTHARFLI	72	11						2434
HPV16	E5	FLLCFCVL	15	8						2435
HPV16	E5	FLLCFCVLL	15	9						2436
HPV16	E5	FLLCFCVLLCV	15	11						2437
HPV16	E5	FVYIPLFL	66	8						2438
HPV16	E5	FVYIPLFLI	66	9						2439
HPV16	E5	FVYIPLFLIHT	66	11						2440
HPV16	E5	HTHARFLI	75	8						2441
HPV16	E5	HTHARFLIT	75	9						2442
HPV16	E5	IIFVYIPL	64	8						2443
HPV16	E5	IIFVYIPLFL	64	10						2444
HPV16	E5	IIFVYIPLFLI	64	11						2445
HPV16	E5	ILVLLLWI	43	9						2446
HPV16	E5	ILVLLLWIT	43	10						2447
HPV16	E5	ILVLLLWITA	43	11						2448
HPV16	E5	ILVLLLWI	44	8						2449
HPV16	E5	ILVLLLWIT	44	9						2450
HPV16	E5	ILVLLLWITA	44	10						2451
HPV16	E5	ILVLLLWITAA	44	11						2452
HPV16	E5	ITAAAFRCFI	51	11						2453

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E5	STLLACFL	8	9						2500
HPV16	E5	STLLACFL	8	10						2501
HPV16	E5	STYSLII	37	8						2502
HPV16	E5	STYSLIIL	37	9						2503
HPV16	E5	STYSLIILV	37	10						2504
HPV16	E5	STYSLIILVL	37	11						2505
HPV16	E5	SVSTYTSI	35	8						2506
HPV16	E5	SVSTYTSII	35	9						2507
HPV16	E5	SVSTYTSII	35	10						2508
HPV16	E5	SVSTYTSIIL	35	11						2509
HPV16	E5	TAASAFRCFI	52	10						2510
HPV16	E5	TAASAFRCFIV	52	11						2511
HPV16	E5	TASITLLA	6	8						2512
HPV16	E5	TASTLLACFL	6	11						2513
HPV16	E5	TLLACFL	10	8						2514
HPV16	E5	TLLACFL	9	8						2515
HPV16	E5	TLLACFL	9	9						2516
HPV16	E5	VLLCVCLL	21	8						2517
HPV16	E5	VLLCVCLLI	21	9						2518
HPV16	E5	VLLWITA	46	8						2519
HPV16	E5	VLLWITAA	46	9						2520
HPV16	E5	VLLWITAASA	46	11						2521
HPV16	E5	YIFVYIPL	63	9						2522
HPV16	E5	YIFVYIPLFL	63	11						2523
HPV16	E5	YIPLFIHT	68	9						2524
HPV16	E5	YIPLFIHTHA	68	11						2525
HPV16	E5	YTSIILV	39	8						2526
HPV16	E5	YTSIILVL	39	9						2527
HPV16	E5	YTSIILVLL	39	10						2528
HPV16	E5	YTSIILVLL	39	11						2529
HPV16	E6	CINCKQPL	110	8	0.0001					2530
HPV16	E6	CIVYRDGNPYA	58	11						2531
HPV16	E6	CLKFYSKI	73	8	0.0001					2532
HPV16	E6	CMSCCRSRT	143	10	0.0001					2533
HPV16	E6	CTELQTTI	23	8						2534
HPV16	E6	CTELQTTIHDII	23	11						2535
HPV16	E6	CVYCKQQL	37	8	0.0001					2536
HPV16	E6	CVYCKQQLL	37	9	0.0001					2537
HPV16	E6	ELQTTIIDI	25	9	0.0001					2538
HPV16	E6	ELQTTIIDI	25	10	0.0002					2539
HPV16	E6	ELQTTIIDIIL	25	11	0.0001					2540
HPV16	E6	EQYNKPL	96	8						2541
HPV16	E6	EQYNKPLCDL	96	11						2542
HPV16	E6	EVYDFAFRL	48	10	0.0001					2543
HPV16	E6	FAFDLCI	52	8						2544
HPV16	E6	FAFDLCIV	52	9	0.0510					2545

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E6	FQDPQERPRKL	9	11						2546
HPV16	E6	HLDKKQRFHNI	125	11						2547
HPV16	E6	ILECVYCKQQL	34	11	0.0004					2548
HPV16	E6	IVYRDGNPYA	59	10	0.0002					2549
HPV16	E6	IVYRDGNPYAV	59	11						2550
HPV16	E6	KLPQLCTEL	18	9	0.0009					2551
HPV16	E6	KLPQLCTELQT	18	11						2552
HPV16	E6	KQQLRREV	41	9						2553
HPV16	E6	LIRINCQKPL	107	11						2554
HPV16	E6	LLRREVYDFA	44	10	0.0003					2555
HPV16	E6	LQTTIHDI	26	8						2556
HPV16	E6	LQTTIHDI	26	9	0.0002					2557
HPV16	E6	LQTTIHDIIL	26	10						2558
HPV16	E6	NIRGRWTGRCM	134	11						2559
HPV16	E6	PLCDLLIRCI	102	10	0.0001					2560
HPV16	E6	PLCPEEKQRHL	116	11	0.0001					2561
HPV16	E6	PQERPRKL	12	8						2562
HPV16	E6	PQERPRKLPL	12	11						2563
HPV16	E6	PQLCTELQT	20	9						2564
HPV16	E6	PQLCTELQTT	20	10						2565
HPV16	E6	PQLCTELQTTI	20	11						2566
HPV16	E6	QLCTELQT	21	8						2567
HPV16	E6	QLCTELQTT	21	9	0.0001					2568
HPV16	E6	QLCTELQTTI	21	10	0.0012					2569
HPV16	E6	QLLRREVYDFA	43	11						2570
HPV16	E6	QQLRREV	42	8						2571
HPV16	E6	QQYNKPLCDL	97	10						2572
HPV16	E6	QQYNKPLCDLL	97	11						2573
HPV16	E6	QTTIHDI	27	8						2574
HPV16	E6	QTTIHDIIL	27	9						2575
HPV16	E6	RTRRETQL	151	8						2576
HPV16	E6	TIHDIILECV	29	10	0.0210					2577
HPV16	E6	TLEQQYNKPL	94	10	0.0001					2578
HPV16	E6	TIHDIIL	28	8						2579
HPV16	E6	TIHDIILECV	28	11						2580
HPV16	E6	TTLEQQYNKPL	93	11						2581
HPV16	E6	YAVCDKCL	67	8						2582
HPV16	E7	CVQSTHVDI	68	9	0.0004					2583
HPV16	E7	CVQSTHVDIRT	68	11						2584
HPV16	E7	DIRTLEDL	75	8	0.0001					2585
HPV16	E7	DIRTLEDLL	75	9	0.0003					2586
HPV16	E7	DIRTLEDLLM	75	10						2587
HPV16	E7	DLIMGTLGI	81	9	0.0002					2588
HPV16	E7	DLIMGTLGIV	81	10	0.0005					2589
HPV16	E7	DLQPETDIL	14	9	0.0003					2590
HPV16	E7	DLICYEQL	21	8	0.0001					2591

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	E7	DTPTLHEYML	4	9						2592
HPV16	E7	DTPTLHEYML	4	10						2593
HPV16	E7	EIDGPAGQA	37	9						2594
HPV16	E7	ETDLYCYEQL	18	11						2595
HPV16	E7	GQAEPDRA	43	8						2596
HPV16	E7	GTLGIVCPI	85	9	0.0210					2597
HPV16	E7	HVDIRLTEDL	73	10	0.0001					2598
HPV16	E7	HVDIRLTEDLL	73	11						2599
HPV16	E7	IVTFCKCKDST	54	11						2600
HPV16	E7	LLMGTLGI	82	8	0.0008					2601
HPV16	E7	LLMGTLGIV	82	9	0.0720			0.0110	0.0021	2602
HPV16	E7	LMGTLGIV	83	8	0.0001	0.0150	5.9000			2603
HPV16	E7	LMGTLGIVCPI	83	11						2604
HPV16	E7	LQPETTDL	15	8						2605
HPV16	E7	MLDLQPET	12	8	0.0001					2606
HPV16	E7	MLDLQPETT	12	9	0.0028					2607
HPV16	E7	MLDLQPETTDL	12	11	0.0005					2608
HPV16	E7	PAGQAEPDRA	41	10						2609
HPV16	E7	PTLHEYML	6	8						2610
HPV16	E7	PTLHEYMMLDL	6	10						2611
HPV16	E7	QAEPDRAHYNI	44	11						2612
HPV16	E7	RAHYNIVT	49	8						2613
HPV16	E7	RLCVQSTHV	66	9	0.0003					2614
HPV16	E7	RLCVQSTHVDI	66	11						2615
HPV16	E7	RTLEDLLM	77	8						2616
HPV16	E7	RTLEDLLMGT	77	10	0.0006					2617
HPV16	E7	RTLEDLLMGTLL	77	11						2618
HPV16	E7	STHVDIRT	71	8						2619
HPV16	E7	STHVDIRCTL	71	9						2620
HPV16	E7	STRLRCVQST	63	10	0.0012					2621
HPV16	E7	TLEDLLMGT	78	9	0.0002					2622
HPV16	E7	TLEDLLMGTLL	78	10	0.0002					2623
HPV16	E7	TLGIVCPI	86	8	0.1500	0.0005	0.5400	0.0047	0.0390	2624
HPV16	E7	TLHEYMLDL	7	9	0.0070					2625
HPV16	E7	TLRLCVQST	64	9	0.0061					2626
HPV16	E7	TLRLCVQSTHV	64	11	0.0006					2627
HPV16	E7	TTDLYCYEQL	19	10						2628
HPV16	E7	VQSTHVDI	69	8						2629
HPV16	E7	VQSTHVDIRT	69	10						2630
HPV16	E7	VQSTHVDIRCTL	69	11						2631
HPV16	E7	VTFCKCKDST	55	10						2632
HPV16	E7	VTFCKCKDSTLL	55	11						2633
HPV16	E7	YMLDLQPET	11	9	0.1400					2634
HPV16	E7	YMLDLQPETT	11	10	0.1500			0.0022	0.0008	2635
HPV16	E7	AAISTSET	372	8		0.0001	1.7000			2636
HPV16	L1	AAISTSETT	372	9						2637

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L1	AIACQKHT	451	8						2638
HPV16	L1	AIACQKHTPPA	451	11						2639
HPV16	L1	AISTSETT	373	8						2640
HPV16	L1	AMDFTTLQA	233	9						2641
HPV16	L1	AQGHNNGI	342	8						2642
HPV16	L1	AQIFNKPYWL	330	10						2643
HPV16	L1	ATPTTSST	513	8						2644
HPV16	L1	ATPTTSSTST	513	10						2645
HPV16	L1	ATPTTSSTSTT	513	11						2646
HPV16	L1	ATVYLPPV	35	8						2647
HPV16	L1	ATVYLPPVPV	35	10						2648
HPV16	L1	AVGENVPDDL	292	10						2649
HPV16	L1	AVGHPYFPI	70	9						2650
HPV16	L1	AVNPGDCPPL	205	10						2651
HPV16	L1	CAAISETT	371	9						2652
HPV16	L1	CAAISETT	371	10						2653
HPV16	L1	CISMDYKQT	172	9						2654
HPV16	L1	CISMDYKQTQL	172	11						2655
HPV16	L1	CLIGCKPPI	183	9						2656
HPV16	L1	CQKHTPPA	454	8						2657
HPV16	L1	CTSICKYDPDI	251	11						2658
HPV16	L1	DAQIFNKPYWL	329	11						2659
HPV16	L1	DLQIFQL	397	8						2660
HPV16	L1	DLQIFQLCKI	397	11						2661
HPV16	L1	DLYIKSGST	300	10						2662
HPV16	L1	DLYIKSGSTA	300	11						2663
HPV16	L1	DMVDTGFGA	225	9						2664
HPV16	L1	DMVDTGFGAM	225	10						2665
HPV16	L1	DQFPLGRKFL	486	10						2666
HPV16	L1	DQFPLGRKFL	486	11						2667
HPV16	L1	DTENASAYA	154	9						2668
HPV16	L1	DTENASAYAA	154	10						2669
HPV16	L1	DTFGAMDFT	228	10						2670
HPV16	L1	DTFGAMDFTT	228	11						2671
HPV16	L1	DTQLVWA	120	8						2672
HPV16	L1	DTQLVWACV	120	10						2673
HPV16	L1	DTSFYNPDT	113	9						2674
HPV16	L1	DTTRSTNM	361	8						2675
HPV16	L1	DTTRSTNMSL	361	10						2676
HPV16	L1	DTYRFVTSQA	442	10						2677
HPV16	L1	DTYRFVTSQAI	442	11						2678
HPV16	L1	DVMYTHISM	412	9						2679
HPV16	L1	DVNYYHIFQM	17	11						2680
HPV16	L1	EATVYLPPV	34	9						2681
HPV16	L1	EATVYLPPVPV	34	11						2682
HPV16	L1	EQMFVRHL	279	8						2683

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L1	EVGRGQPL	132	8						2684
HPV16	L1	EVGRGQPLGV	132	10						2685
HPV16	L1	EVNLKEKFS	474	10						2686
HPV16	L1	EVPLDICT	245	8						2687
HPV16	L1	EVPLDICTSI	245	10						2688
HPV16	L1	FIFQLCKI	400	8						2689
HPV16	L1	FIFQLCKIT	400	9						2690
HPV16	L1	FIFQLCKITL	400	10						2691
HPV16	L1	FIFQLCKITLT	400	11						2692
HPV16	L1	FIYILVIT	5	8						2693
HPV16	L1	FLQAGLKA	494	9						2694
HPV16	L1	FQLCKITL	402	8						2695
HPV16	L1	FQLCKITLT	402	9						2696
HPV16	L1	FQLCKITLTA	402	10						2697
HPV16	L1	FQMSLWLPSEA	25	11						2698
HPV16	L1	FTLGKRKA	506	8						2699
HPV16	L1	FTLGKRKAT	506	9						2700
HPV16	L1	FTLGKRKATPT	506	11						2701
HPV16	L1	FTILOANKSEV	236	11						2702
HPV16	L1	FVRHLFNRA	282	9						2703
HPV16	L1	FVRHLFNRA	282	11						2704
HPV16	L1	FVTSQAIA	446	8						2705
HPV16	L1	FVTVDVDT	356	8						2706
HPV16	L1	FVTVDVDTTRST	356	11						2707
HPV16	L1	GAMDFITL	232	8						2708
HPV16	L1	GAMDFITLQA	232	10						2709
HPV16	L1	GAVGENVPDDL	291	11						2710
HPV16	L1	GICWGNQL	348	8						2711
HPV16	L1	GICWGNQLFV	348	10						2712
HPV16	L1	GICWGNQLFVT	348	11						2713
HPV16	L1	GISGHPLL	142	8						2714
HPV16	L1	GISGHPLLNL	142	11						2715
HPV16	L1	GLKAKPKFT	499	9						2716
HPV16	L1	GLKAKPKFTL	499	10						2717
HPV16	L1	GLQPPPGT	431	9						2718
HPV16	L1	GLQPPPGTGL	431	10						2719
HPV16	L1	GLQYRVFRI	93	9						2720
HPV16	L1	GLQYRVFRIHL	93	11						2721
HPV16	L1	GQPLGVGI	136	8						2722
HPV16	L1	GTLEDYRFV	438	10						2723
HPV16	L1	GTLEDYRFVT	438	11						2724
HPV16	L1	GTSRLAV	64	8						2725
HPV16	L1	GVDNRECI	166	8						2726
HPV16	L1	GVDNRECI	166	10						2727
HPV16	L1	GVEVGRGQPL	130	10						2728
HPV16	L1	GVGISGHPL	140	9						2729

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L1	GVGISGHPLL	140	10						2730
HPV16	L1	HAGTSRLL	62	8						2731
HPV16	L1	HAGTSRLLA	62	9						2732
HPV16	L1	HAGTSRLLAV	62	10						2733
HPV16	L1	HIFFQMSL	22	8						2734
HPV16	L1	HIFFQMSLWL	22	10						2735
HPV16	L1	HLFNRAGA	285	8						2736
HPV16	L1	HLFNRAGAV	285	9						2737
HPV16	L1	HTPPAPKEDPL	457	11						2738
HPV16	L1	IACQKHTPPA	452	10						2739
HPV16	L1	ILEDWNFGL	424	9						2740
HPV16	L1	ILVITCYENDV	8	11						2741
HPV16	L1	ILVPKVSGL	86	9						2742
HPV16	L1	IQDGMVDVT	221	9						2743
HPV16	L1	ITCYENDV	11	8						2744
HPV16	L1	ITCYENDVNV	11	10						2745
HPV16	L1	ITLTADVM	407	8						2746
HPV16	L1	ITLTADVMT	407	9						2747
HPV16	L1	ITLTADVMTYI	407	11						2748
HPV16	L1	KAKPKFTL	501	8						2749
HPV16	L1	KATPTTSST	512	9						2750
HPV16	L1	KATPTTSSTST	512	11						2751
HPV16	L1	KILVPKVSGL	85	10						2752
HPV16	L1	KITLTADV	406	8						2753
HPV16	L1	KITLTADVM	406	9						2754
HPV16	L1	KITLTADVMT	406	10						2755
HPV16	L1	KLDDTENA	151	8						2756
HPV16	L1	KLDDTENASA	151	10						2757
HPV16	L1	KMVSEPYGDSL	262	11						2758
HPV16	L1	KQTQLCLI	178	8						2759
HPV16	L1	KVSGLQYRV	90	9						2760
HPV16	L1	KVVSTDEYV	46	9						2761
HPV16	L1	KVVSTDEYVA	46	10						2762
HPV16	L1	LASSNYFPT	312	9						2763
HPV16	L1	LAVGHPYFPI	69	10						2764
HPV16	L1	LIGCKPPI	184	8						2765
HPV16	L1	LINTVIQDGM	216	11						2766
HPV16	L1	LLAVGHPYFPI	68	11						2767
HPV16	L1	LLNKLLDDT	148	8						2768
HPV16	L1	LLNKLLDDTENA	148	11						2769
HPV16	L1	LLQAGLKA	495	8						2770
HPV16	L1	LQANKSEV	239	8						2771
HPV16	L1	LQANKSEVPL	239	10						2772
HPV16	L1	LQFIFQLCKI	398	10						2773
HPV16	L1	LQFIFQLCKIT	398	11						2774
HPV16	L1	LQPPPGGT	432	8						2775

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV16	L1	LQPPGGTL	432	9						2776
HPV16	L1	LQRAQGHNNGI	339	11						2777
HPV16	L1	LQYRVFRI	94	8						2778
HPV16	L1	LQYRVFRIHL	94	10						2779
HPV16	L1	LTADVMTYI	409	9						2780
HPV16	L1	LVITCYENDV	9	10						2781
HPV16	L1	LVPKVSGL	87	8						2782
HPV16	L1	LWACVGV	124	8						2783
HPV16	L1	LWACVGV	124	10						2784
HPV16	L1	MQVTFIYI	1	8						2785
HPV16	L1	MQVTFIYIL	1	9						2786
HPV16	L1	MQVTFIYILV	1	10						2787
HPV16	L1	MQVTFIYILVI	1	11						2788
HPV16	L1	MTYIHSMNST	414	10						2789
HPV16	L1	MTYIHSMNSTI	414	11						2790
HPV16	L1	MVDTGFGA	226	8						2791
HPV16	L1	MVDTGFGAM	226	9						2792
HPV16	L1	MVSEPYGDSL	263	10						2793
HPV16	L1	MVTSDAQI	325	8						2794
HPV16	L1	NAGVDNRECI	164	10						2795
HPV16	L1	NASAYAANA	157	9						2796
HPV16	L1	NASAYAANAGV	157	11						2797
HPV16	L1	NIYYHAGT	58	8						2798
HPV16	L1	NIYYHAGTSRL	58	11						2799
HPV16	L1	NLASSNYEPT	311	10						2800
HPV16	L1	NLKEKFS	476	8						2801
HPV16	L1	NLKEKFSADL	476	10						2802
HPV16	L1	NMSLCAAI	367	8						2803
HPV16	L1	NMSLCAAIST	367	10						2804
HPV16	L1	NQLFVTIV	353	8						2805
HPV16	L1	NQLFVTIVVDT	353	10						2806
HPV16	L1	NQLFVTIVVDTT	353	11						2807
HPV16	L1	NTNFKEYL	383	8						2808
HPV16	L1	NTVIQDGM	218	9						2809
HPV16	L1	NTVIQDGMV	218	10						2810
HPV16	L1	NVPDDLVI	296	8						2811
HPV16	L1	NVYHIFQM	19	9						2812
HPV16	L1	NVYHIFQMSL	19	11						2813
HPV16	L1	PAPKEDPL	460	8						2814
HPV16	L1	PIKKPNNNKI	77	10						2815
HPV16	L1	PIKKPNNNKIL	77	11						2816
HPV16	L1	PLDICTSI	247	8						2817
HPV16	L1	PLELINTV	213	8						2818
HPV16	L1	PLELINTVI	213	9						2819
HPV16	L1	PLGRKFLL	489	8						2820
HPV16	L1	PLGRKFLLQA	489	10						2821

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L1	PLGVGISGHPL	138	11						2822
HPV16	L1	PLKKYTFWEV	466	10						2823
HPV16	L1	PLLNKLDDT	147	9						2824
HPV16	L1	PTPSGSMV	319	8						2825
HPV16	L1	PTPSGSMVT	319	9						2826
HPV16	L1	PTTSSTST	515	8						2827
HPV16	L1	PTTSSTSTT	515	9						2828
HPV16	L1	PTTSSTSTTA	515	10						2829
HPV16	L1	PVPVSKVV	41	8						2830
HPV16	L1	PVPVSKVVST	41	10						2831
HPV16	L1	PVSKVVST	43	8						2832
HPV16	L1	QAGLKAKPKFT	497	11						2833
HPV16	L1	QAIACQKHT	450	9						2834
HPV16	L1	QANKSEVPL	240	9						2835
HPV16	L1	QANKSEVPLDI	240	11						2836
HPV16	L1	QIFNKPYWL	331	9						2837
HPV16	L1	QLCKITLT	403	8						2838
HPV16	L1	QLCKITLTA	403	9						2839
HPV16	L1	QLCKITLTADV	403	11						2840
HPV16	L1	QLCLIGCKPPI	181	11						2841
HPV16	L1	QLFVTVVDIT	354	9						2842
HPV16	L1	QLFVTVVDIT	354	10						2843
HPV16	L1	QMFVRHLFNRA	280	11						2844
HPV16	L1	QMSLWLPSEA	26	10						2845
HPV16	L1	QMSLWLPSEAT	26	11						2846
HPV16	L1	QVTFIYIL	2	8						2847
HPV16	L1	QVTFIYILV	2	9						2848
HPV16	L1	QVTFIYILVI	2	10						2849
HPV16	L1	QVTFIYILVIT	2	11						2850
HPV16	L1	RAGAVGENV	289	9						2851
HPV16	L1	RAQGHNNGI	341	9						2852
HPV16	L1	RLVWACVGV	123	9						2853
HPV16	L1	RLVWACVGVGV	123	11						2854
HPV16	L1	RTNIYYHA	56	8						2855
HPV16	L1	RTNIYYHAGT	56	10						2856
HPV16	L1	SADLDQFPL	482	9						2857
HPV16	L1	SAYAANAGV	159	9						2858
HPV16	L1	SICKYPDYI	253	9						2859
HPV16	L1	SICKYPDYIKM	253	11						2860
HPV16	L1	SLCAAIST	369	8						2861
HPV16	L1	SLCAAISTSET	369	11						2862
HPV16	L1	SLFFYLRRQEM	271	11						2863
HPV16	L1	SLWLPSEA	28	8						2864
HPV16	L1	SLWLPSEAT	28	9						2865
HPV16	L1	SLWLPSEATV	28	10						2866
HPV16	L1	SMDYKQTQL	174	9						2867

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L1	SMDYKQQLCL	174	11						2868
HPV16	L1	SMVTDAQI	324	9						2869
HPV16	L1	SQAIACQKHT	449	10						2870
HPV16	L1	STDEYVART	49	9						2871
HPV16	L1	STDEVVARTNI	49	11						2872
HPV16	L1	STILEDWNFGL	422	11						2873
HPV16	L1	STNMSLCA	365	8						2874
HPV16	L1	STNMSLCAA	365	9						2875
HPV16	L1	STNMSLCAAI	365	10						2876
HPV16	L1	STSETTYKNT	375	10						2877
HPV16	L1	STTAKRKRKL	521	11						2878
HPV16	L1	TADVMTYI	410	8						2879
HPV16	L1	TADVMTYIHSM	410	11						2880
HPV16	L1	TAKRKRKL	523	9						2881
HPV16	L1	TILEDWNFGL	423	10						2882
HPV16	L1	TLEDYTRFV	439	9						2883
HPV16	L1	TLEDYTRFVT	439	10						2884
HPV16	L1	TLGKRKAT	507	8						2885
HPV16	L1	TLGKRKATPT	507	10						2886
HPV16	L1	TLGKRKATPTT	507	11						2887
HPV16	L1	TLQANKSEV	238	9						2888
HPV16	L1	TLQANKSEVPL	238	11						2889
HPV16	L1	TLTADVMT	408	8						2890
HPV16	L1	TLTADVMTYI	408	10						2891
HPV16	L1	TQRLVWACV	121	9						2892
HPV16	L1	TQRLVWACVGV	121	11						2893
HPV16	L1	TTAKRKRKL	522	10						2894
HPV16	L1	TTQANKSEV	237	10						2895
HPV16	L1	TTRSTNMSL	362	9						2896
HPV16	L1	TTRSTNMSLCA	362	11						2897
HPV16	L1	TTSSTST	516	8						2898
HPV16	L1	TTSSTSTA	516	9						2899
HPV16	L1	TVIQDGM	219	8						2900
HPV16	L1	TVIQDGMV	219	9						2901
HPV16	L1	TVIQDGMVDT	219	11						2902
HPV16	L1	TVVDTTRST	358	9						2903
HPV16	L1	TVVDTTRSTNM	358	11						2904
HPV16	L1	TVYLPVPV	36	9						2905
HPV16	L1	VARTNIYYHA	54	10						2906
HPV16	L1	VAVNPGDCPPL	204	11						2907
HPV16	L1	VIQDGMV	220	8						2908
HPV16	L1	VIQDGMVDT	220	10						2909
HPV16	L1	VITCYENDV	10	9						2910
HPV16	L1	VITCYENDVNV	10	11						2911
HPV16	L1	VMTYIHSM	413	8						2912
HPV16	L1	VMTYIHSMNST	413	11						2913

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV16	L1	VTFIYILV	3	8						2914
HPV16	L1	VTFIYILVI	3	9						2915
HPV16	L1	VTFIYILVIT	3	10						2916
HPV16	L1	VTVVDITRST	357	10						2917
HPV16	L1	VVDITRST	359	8						2918
HPV16	L1	VVDITRSTNM	359	10						2919
HPV16	L1	VVSTDEYV	47	8						2920
HPV16	L1	VVSTDEYVA	47	9						2921
HPV16	L1	VVSTDEYVART	47	11						2922
HPV16	L1	WACVGVEV	126	8						2923
HPV16	L1	WLPSEATV	30	8						2924
HPV16	L1	WLPSEATVYL	30	10						2925
HPV16	L1	YHSMNST	416	8						2926
HPV16	L1	YHSMNSTI	416	9						2927
HPV16	L1	YHSMNSTIL	416	10						2928
HPV16	L1	YIKGSGST	302	8						2929
HPV16	L1	YIKGSGSTA	302	9						2930
HPV16	L1	YIKGSGSTANL	302	11						2931
HPV16	L1	YLPVPVPSKV	38	10						2932
HPV16	L1	YLPVPVPSKVV	38	11						2933
HPV16	L1	YLRHGEEYDL	389	10						2934
HPV16	L1	YLRREQMFV	275	9						2935
HPV16	L1	YTFWEVNL	470	8						2936
HPV16	L1	YVARITNIYYHA	53	11						2937
HPV16	L2	AALPTSINNGL	355	11						2938
HPV16	L2	AILDINNT	144	8						2939
HPV16	L2	AILDINNTV	144	9						2940
HPV16	L2	AILDINNTVT	144	10						2941
HPV16	L2	AILDINNTVTT	144	11						2942
HPV16	L2	ALHRPAL	288	8						2943
HPV16	L2	ALPTSINGL	356	10						2944
HPV16	L2	ALTSRRGTGI	293	9						2945
HPV16	L2	ATDTLAPV	82	8						2946
HPV16	L2	ATQLYKTKCKQA	15	11						2947
HPV16	L2	DAGAPTSV	116	8						2948
HPV16	L2	DAGAPTSVPSI	116	11						2949
HPV16	L2	DIIPKVEGKT	31	10						2950
HPV16	L2	DIIPKVEGKTI	31	11						2951
HPV16	L2	DINNTVT	147	8						2952
HPV16	L2	DINNTVTTV	147	9						2953
HPV16	L2	DINNTVTTVT	147	10						2954
HPV16	L2	DINNTVTTVTT	147	11						2955
HPV16	L2	DIPINITDQA	415	10						2956
HPV16	L2	DIVALHRPA	285	9						2957
HPV16	L2	DIVALHRPAL	285	10						2958
HPV16	L2	DIVALHRPALT	285	11						2959

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L2	DIYADDFI	367	8						2960
HPV16	L2	DIYADDFIT	367	9						2961
HPV16	L2	DIYADDFITDT	367	11						2962
HPV16	L2	DQAPSLIP	422	9						2963
HPV16	L2	DQAPSLIPV	422	10						2964
HPV16	L2	DQILQYGSM	43	9						2965
HPV16	L2	DQILQYGSMDV	43	11						2966
HPV16	L2	DTFVSTNPNT	199	11						2967
HPV16	L2	DTLAPVRPPL	84	10						2968
HPV16	L2	DTLAPVRPPLT	84	11						2969
HPV16	L2	DTSTTPVPSV	376	10						2970
HPV16	L2	DTTPAILDI	140	9						2971
HPV16	L2	DVSGFSIT	129	8						2972
HPV16	L2	DVSGFSIT	129	9						2973
HPV16	L2	DVSGFSITST	129	11						2974
HPV16	L2	EIELQITIT	338	8						2975
HPV16	L2	EIELQITITST	338	11						2976
HPV16	L2	EIPMDTIF	195	8						2977
HPV16	L2	EIPMDTIFV	195	9						2978
HPV16	L2	EIPMDTIFVST	195	11						2979
HPV16	L2	ELQITITPST	340	9						2980
HPV16	L2	ELQITITPSTYT	340	11						2981
HPV16	L2	ETGGHFTL	176	8						2982
HPV16	L2	ETSFIDAGA	111	9						2983
HPV16	L2	ETSFIDAGAPT	111	11						2984
HPV16	L2	FIDAGAPT	114	8						2985
HPV16	L2	FIDAGAPTSV	114	10						2986
HPV16	L2	FITDTST	373	8						2987
HPV16	L2	FITDTSTTPV	373	10						2988
HPV16	L2	FITPTKL	242	8						2989
HPV16	L2	FITPTKLI	242	9						2990
HPV16	L2	FITPTKLIT	242	10						2991
HPV16	L2	FIVSTNPNT	201	9						2992
HPV16	L2	FIVSTNPNTV	201	10						2993
HPV16	L2	FIVSTNPNTVT	201	11						2994
HPV16	L2	FLDIVALHRPA	283	11						2995
HPV16	L2	FTDPFVLQPPT	163	11						2996
HPV16	L2	FTLSSTI	181	8						2997
HPV16	L2	FTLSSTIST	181	10						2998
HPV16	L2	GAPTSVPSI	118	9						2999
HPV16	L2	GAYNIPLV	404	8						3000
HPV16	L2	GIDVDNTL	259	8						3001
HPV16	L2	GIGTGSST	59	8						3002
HPV16	L2	GLGICTGSST	57	10						3003
HPV16	L2	GLYDIYADDFI	364	11						3004
HPV16	L2	GLYSRTTQV	226	10						3005

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L2	GTCPDII	26	8						3006
HPV16	L2	GTCPDIIIPKV	26	11						3007
HPV16	L2	GTGRTGYI	65	9						3008
HPV16	L2	GTGRTGYIPL	65	11						3009
HPV16	L2	GIGSGTGGRT	61	10						3010
HPV16	L2	GTRPPTAT	76	8						3011
HPV16	L2	GTRPPTATDT	76	10						3012
HPV16	L2	GTRPPTATDTL	76	11						3013
HPV16	L2	GVFFGGLGI	52	9						3014
HPV16	L2	GVFFGGLGIGT	52	11						3015
HPV16	L2	HAALPTSI	354	8						3016
HPV16	L2	IADAGDFYL	440	9						3017
HPV16	L2	IADQILQYGSM	41	11						3018
HPV16	L2	IAPDPDFL	277	8						3019
HPV16	L2	IAPDPDFLDI	277	10						3020
HPV16	L2	IAPDPDFLDIV	277	11						3021
HPV16	L2	IADAGDFYL	439	10						3022
HPV16	L2	IIPKVEGKI	32	9						3023
HPV16	L2	IIPKVEGKTI	32	10						3024
HPV16	L2	IIPKVEGKTIA	32	11						3025
HPV16	L2	ILDINNTV	145	8						3026
HPV16	L2	ILDINNTVT	145	9						3027
HPV16	L2	ILDINNTVTT	145	10						3028
HPV16	L2	ILDINNTVTTV	145	11						3029
HPV16	L2	ILQYGSMDV	45	9						3030
HPV16	L2	ITDQAPSL	420	8						3031
HPV16	L2	ITDQAPSLI	420	9						3032
HPV16	L2	ITDQAPSLIPI	420	11						3033
HPV16	L2	ITDTSITPV	374	9						3034
HPV16	L2	ITPSTYTT	344	8						3035
HPV16	L2	ITPSTYTTT	344	9						3036
HPV16	L2	ITPTTKLI	243	8						3037
HPV16	L2	ITPTTKLIT	243	9						3038
HPV16	L2	ITTSTDIT	135	8						3039
HPV16	L2	ITTSTDITPA	135	10						3040
HPV16	L2	ITTSTDITTPAI	135	11						3041
HPV16	L2	ITYDNPAYEGI	250	11						3042
HPV16	L2	IVALHRPA	286	8						3043
HPV16	L2	IVALHRPAL	286	9						3044
HPV16	L2	IVALHRPALT	286	10						3045
HPV16	L2	IVPGSPQYT	430	9						3046
HPV16	L2	IVPGSPQYTI	430	10						3047
HPV16	L2	IVPGSPQYTH	430	11						3048
HPV16	L2	IVSLVEET	105	8						3049
HPV16	L2	IVSLVEETSI	105	11						3050
HPV16	L2	IVSTNPNT	202	8						3051

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L2	IVSTNPNTV	202	9						3052
HPV16	L2	IVSTNPNTVT	202	10						3053
HPV16	L2	KLITYDNPA	248	9						3054
HPV16	L2	KQAGTCPPDI	23	10						3055
HPV16	L2	KQAGTCPPDIH	23	11						3056
HPV16	L2	KTCCKAQT	20	8						3057
HPV16	L2	KTIADQIL	39	8						3058
HPV16	L2	KVEGKTIA	35	8						3059
HPV16	L2	KVEGKTIADQI	35	11						3060
HPV16	L2	KVHYYYDFST	323	10						3061
HPV16	L2	KVHYYYDFSTI	323	11						3062
HPV16	L2	KVVDPAFI	236	8						3063
HPV16	L2	KVVDPAFIT	236	9						3064
HPV16	L2	KVVDPAFITT	236	10						3065
HPV16	L2	LAPVRPPL	86	8						3066
HPV16	L2	LAPVRPPLT	86	9						3067
HPV16	L2	LAPVRPPLTV	86	10						3068
HPV16	L2	LITYDNPA	249	8						3069
HPV16	L2	LQPTPAET	169	9						3070
HPV16	L2	LQITITST	341	8						3071
HPV16	L2	LQITITSTYT	341	10						3072
HPV16	L2	LQITITSTYTT	341	11						3073
HPV16	L2	LQYGSMDV	46	8						3074
HPV16	L2	LTSRRTGI	294	8						3075
HPV16	L2	LVEETSTFI	108	8						3076
HPV16	L2	LVEETSFIDA	108	10						3077
HPV16	L2	LVSGPDPI	410	9						3078
HPV16	L2	LVSGPDIPINI	410	11						3079
HPV16	L2	MLRKRKRL	454	9						3080
HPV16	L2	NIAPDPDFL	276	9						3081
HPV16	L2	NIAPDPDFLDI	276	11						3082
HPV16	L2	NIPLVSGPDI	407	10						3083
HPV16	L2	NITDQAPSL	419	9						3084
HPV16	L2	NITDQAPSLI	419	10						3085
HPV16	L2	NTIPFGGA	397	9						3086
HPV16	L2	NTVTSSTPI	208	9						3087
HPV16	L2	NTVTVT	150	8						3088
HPV16	L2	PAETGGHFT	174	9						3089
HPV16	L2	PAETGGHFTL	174	10						3090
HPV16	L2	PAFITPT	240	8						3091
HPV16	L2	PAFITPTKL	240	10						3092
HPV16	L2	PAFITPTKLI	240	11						3093
HPV16	L2	PAILDINNT	143	9						3094
HPV16	L2	PAILDINNTV	143	10						3095
HPV16	L2	PAILDINNTVT	143	11						3096
HPV16	L2	PALTSRRT	292	8						3097

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L2	PALTSRRITGI	292	10						3098
HPV16	L2	PANTTIFGGA	395	11						3099
HPV16	L2	PAYEGIDV	255	8						3100
HPV16	L2	PAYEGIDVDNT	255	11						3101
HPV16	L2	PINITDQA	417	8						3102
HPV16	L2	PINITDQAPSL	417	11						3103
HPV16	L2	PIPGSRPV	215	8						3104
HPV16	L2	PIPGSRPVA	215	9						3105
HPV16	L2	PIPGSRPVARL	215	11						3106
HPV16	L2	PIVPGSPQYT	429	10						3107
HPV16	L2	PIVPGSPQYTI	429	11						3108
HPV16	L2	PLGTRPPT	74	8						3109
HPV16	L2	PLGTRPPTA	74	9						3110
HPV16	L2	PLGTRPPTAT	74	10						3111
HPV16	L2	PLVSGPDI	409	8						3112
HPV16	L2	PLVSGPDPI	409	10						3113
HPV16	L2	PMDTFIVST	197	9						3114
HPV16	L2	PQYTIADA	435	9						3115
HPV16	L2	PTATDTLA	80	8						3116
HPV16	L2	PTATDTLAPV	80	10						3117
HPV16	L2	PTFTDPSV	161	8						3118
HPV16	L2	PTFTDPSVL	161	9						3119
HPV16	L2	PTKLITYDNPA	246	11						3120
HPV16	L2	PTPAETGGHFT	172	11						3121
HPV16	L2	PTSINNGL	358	8						3122
HPV16	L2	PTSINNGLYDI	358	11						3123
HPV16	L2	PTSVPSIPPDV	120	11						3124
HPV16	L2	PVARLGLYSRT	221	11						3125
HPV16	L2	PVGPSDPSI	97	9						3126
HPV16	L2	PVGPSDPSIV	97	10						3127
HPV16	L2	PVPSVPST	381	8						3128
HPV16	L2	PVPSVPSTSL	381	10						3129
HPV16	L2	PVRPPLTV	88	8						3130
HPV16	L2	PVRPPLTVDPV	88	11						3131
HPV16	L2	QAGTCPPDI	24	9						3132
HPV16	L2	QAGTCPPDII	24	10						3133
HPV16	L2	QAPSLIPI	423	8						3134
HPV16	L2	QAPSLIPIV	423	9						3135
HPV16	L2	QILQYGS	44	8						3136
HPV16	L2	QILQYGS	44	10						3137
HPV16	L2	QILQYGS	44	10						3138
HPV16	L2	QLYKTCQA	17	9						3139
HPV16	L2	QLYKTCQAQGT	17	11						3140
HPV16	L2	QQVKVVDPA	233	9						3141
HPV16	L2	QQVKVVDPAFI	233	11						3142
HPV16	L2	QITPSTYT	342	9						3143
HPV16	L2	QITPSTYTT	342	10						3143

Table VIII

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L2	QTITPSTYTTT	342	11						3144
HPV16	L2	QTLRTRSGKSI	310	11						3145
HPV16	L2	QVKVVDPA	234	8						3146
HPV16	L2	QVKVVDPAFI	234	10						3147
HPV16	L2	QVKVVDPAFIT	234	11						3148
HPV16	L2	RASATQLYKT	12	10						3149
HPV16	L2	RIGNKQTL	305	8						3150
HPV16	L2	RIGNKQTLRT	305	10						3151
HPV16	L2	RLGLYSRT	224	8						3152
HPV16	L2	RLGLYSRTT	224	9						3153
HPV16	L2	RLPYFFSDV	461	9						3154
HPV16	L2	RLPYFFSDVSL	461	11						3155
HPV16	L2	RTGIRYSRI	298	9						3156
HPV16	L2	RTGYPLGT	69	9						3157
HPV16	L2	RTKRASAT	9	8						3158
HPV16	L2	RTKRASATQL	9	10						3159
HPV16	L2	RTRSGKSI	313	8						3160
HPV16	L2	RTRSGKSIGA	313	10						3161
HPV16	L2	RTTQQVKV	230	8						3162
HPV16	L2	RTTQQVKVV	230	9						3163
HPV16	L2	SABEIELQT	335	9						3164
HPV16	L2	SABEIELQTI	335	10						3165
HPV16	L2	SABEIELQTTT	335	11						3166
HPV16	L2	SAKRTKRA	6	8						3167
HPV16	L2	SAKRTKRASA	6	10						3168
HPV16	L2	SAKRTKRASAT	6	11						3169
HPV16	L2	SATQLYKT	14	8						3170
HPV16	L2	SINAPDPDFL	274	11						3171
HPV16	L2	SINNGLYDI	360	9						3172
HPV16	L2	SINNGLYDIYA	360	11						3173
HPV16	L2	SIPPDVSGFSI	125	11						3174
HPV16	L2	SITTSTDT	134	8						3175
HPV16	L2	SITTSTDTT	134	9						3176
HPV16	L2	SITTSTDTIPA	134	11						3177
HPV16	L2	SIVSLVEET	104	9						3178
HPV16	L2	SLSGYIPA	389	8						3179
HPV16	L2	SLSGYIPANT	389	10						3180
HPV16	L2	SLSGYIPANTT	389	11						3181
HPV16	L2	SLVEETSFI	107	9						3182
HPV16	L2	SLVEETSFIDA	107	11						3183
HPV16	L2	SMGVFFGGL	50	9						3184
HPV16	L2	SMGVFFGGLGI	50	11						3185
HPV16	L2	STDITPAI	138	8						3186
HPV16	L2	STDITPAIL	138	9						3187
HPV16	L2	STDITPAILDI	138	11						3188
HPV16	L2	STHNYEEI	189	8						3189

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV16	L2	STHNYEEIPM	189	10						3190
HPV16	L2	STDSAEEL	331	9						3191
HPV16	L2	STDSAEEL	331	11						3192
HPV16	L2	STDSAEEL	331	11						3193
HPV16	L2	STDSAEEL	331	11						3194
HPV16	L2	STDSAEEL	331	11						3195
HPV16	L2	STDSAEEL	331	11						3196
HPV16	L2	STDSAEEL	331	11						3197
HPV16	L2	STDSAEEL	331	11						3198
HPV16	L2	STDSAEEL	331	11						3199
HPV16	L2	STDSAEEL	331	11						3200
HPV16	L2	STDSAEEL	331	11						3201
HPV16	L2	STDSAEEL	331	11						3202
HPV16	L2	STDSAEEL	331	11						3203
HPV16	L2	STDSAEEL	331	11						3204
HPV16	L2	STDSAEEL	331	11						3205
HPV16	L2	STDSAEEL	331	11						3206
HPV16	L2	STDSAEEL	331	11						3207
HPV16	L2	STDSAEEL	331	11						3208
HPV16	L2	STDSAEEL	331	11						3209
HPV16	L2	STDSAEEL	331	11						3210
HPV16	L2	STDSAEEL	331	11						3211
HPV16	L2	STDSAEEL	331	11						3212
HPV16	L2	STDSAEEL	331	11						3213
HPV16	L2	STDSAEEL	331	11						3214
HPV16	L2	STDSAEEL	331	11						3215
HPV16	L2	STDSAEEL	331	11						3216
HPV16	L2	STDSAEEL	331	11						3217
HPV16	L2	STDSAEEL	331	11						3218
HPV16	L2	STDSAEEL	331	11						3219
HPV16	L2	STDSAEEL	331	11						3220
HPV16	L2	STDSAEEL	331	11						3221
HPV16	L2	STDSAEEL	331	11						3222
HPV16	L2	STDSAEEL	331	11						3223
HPV16	L2	STDSAEEL	331	11						3224
HPV16	L2	STDSAEEL	331	11						3225
HPV16	L2	STDSAEEL	331	11						3226
HPV16	L2	STDSAEEL	331	11						3227
HPV16	L2	STDSAEEL	331	11						3228
HPV16	L2	STDSAEEL	331	11						3229
HPV16	L2	STDSAEEL	331	11						3230
HPV16	L2	STDSAEEL	331	11						3231
HPV16	L2	STDSAEEL	331	11						3232
HPV16	L2	STDSAEEL	331	11						3233
HPV16	L2	STDSAEEL	331	11						3234
HPV16	L2	STDSAEEL	331	11						3235

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV16	L2	TTSHAALPTSI	351	11						3236
HPV16	L2	TTSTDITPA	136	9						3237
HPV16	L2	TTSTDITPAI	136	10						3238
HPV16	L2	TTSTDITPAIL	136	11						3239
HPV16	L2	TTTSHAAL	350	8						3240
HPV16	L2	TTTSHAALPT	350	10						3241
HPV16	L2	TTTTHNNPT	153	10						3242
HPV16	L2	TVTSSTPI	209	8						3243
HPV16	L2	TVTTHNNPT	154	9						3244
HPV16	L2	TVTTHNNPTFT	154	11						3245
HPV16	L2	VALHRPAL	287	8						3246
HPV16	L2	VALHRPALT	287	9						3247
HPV16	L2	VARLGLYSRT	222	10						3248
HPV16	L2	VARLGLYSRTT	222	11						3249
HPV16	L2	VLQPTPA	168	8						3250
HPV16	L2	VLQPTPAET	168	10						3251
HPV16	L2	VTTHNNPT	155	8						3252
HPV16	L2	VTTHNNPTFT	155	10						3253
HPV16	L2	VTTVTTHNNPT	152	11						3254
HPV16	L2	VVDPAFIT	237	8						3255
HPV16	L2	VVDPAFITT	237	9						3256
HPV16	L2	VVDPAFITTPT	237	11						3257
HPV16	L2	YADDFITDT	369	9						3258
HPV16	L2	YADDFITDTST	369	11						3259
HPV16	L2	YIPANTTI	393	8						3260
HPV16	L2	YIPLGTRPPT	72	10						3261
HPV16	L2	YIPLGTRPPTA	72	11						3262
HPV16	L2	YLHPSYYM	447	8						3263
HPV16	L2	YLHPSYYML	447	9						3264
HPV16	L2	YMLRKRRKRL	453	10						3265
HPV16	L2	YTTTSHAA	349	8						3266
HPV16	L2	YTTTSHAAL	349	9						3267
HPV16	L2	YTTTSHAALPT	349	11						3268
HPV18	E1	AAFLKSNCOA	396	11						3269
HPV18	E1	AAFLKSNCOA	397	10						3270
HPV18	E1	AALYWYRT	324	8						3271
HPV18	E1	AALYWYRTGI	324	10						3272
HPV18	E1	AIFGVNPT	246	8	0.0021					3273
HPV18	E1	AIFGVNPTI	246	9						3274
HPV18	E1	AIFGVNPTIA	246	10						3275
HPV18	E1	AIVDKKTGDV	22	10						3276
HPV18	E1	AIVDKKTGDVI	22	11						3277
HPV18	E1	ALDGNPISI	546	9	0.0210					3278
HPV18	E1	ALPHAQEV	68	8						3279
HPV18	E1	ALKSFLKGT	466	9						3280
HPV18	E1	ALLADSNNSA	387	10	0.0004					3281

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	ALLADSNNA	387	11						3282
HPV18	E1	ALYWYRTGI	325	9	0.0032					3283
HPV18	E1	AMLAVFKDT	213	9						3284
HPV18	E1	AMLDATT	526	8						3285
HPV18	E1	AMLDATT	526	9						3286
HPV18	E1	AQALFHAQEV	66	10						3287
HPV18	E1	AQEVINDA	72	8						3288
HPV18	E1	AQEVHNDAAQV	72	10						3289
HPV18	E1	AQEVHNDAAQVL	72	11						3290
HPV18	E1	AQKQNM	422	8						3291
HPV18	E1	AQLKDLLKV	199	9						3292
HPV18	E1	ATDTGSDM	40	8						3293
HPV18	E1	ATDTGSDMV	40	9						3294
HPV18	E1	ATMCKHYRRA	413	10						3295
HPV18	E1	ATQIQVT	144	8						3296
HPV18	E1	ATTCWTFYFDT	531	11	0.0140					3297
HPV18	E1	AVFKDTYGL	216	9						3298
HPV18	E1	AVISFNST	504	9						3299
HPV18	E1	CATMCKHYRRA	412	11						3300
HPV18	E1	CLDCKWGV	273	8						3301
HPV18	E1	CLDCKWGVLI	273	9						3302
HPV18	E1	CLDCKWGVLI	273	10	0.0002					3303
HPV18	E1	CLDCKWGVLI	273	11						3304
HPV18	E1	CLVFCGPA	479	8						3305
HPV18	E1	CLVFCGPANT	479	10						3306
HPV18	E1	CMLIQPKL	311	9						3307
HPV18	E1	CQAKYLKDC	404	10						3308
HPV18	E1	CQAKYLKDCAT	404	11						3309
HPV18	E1	CTDWVTAI	240	8						3310
HPV18	E1	CTDWVTAIFGV	240	11						3311
HPV18	E1	CTIAQLKDL	196	9						3312
HPV18	E1	CTIAQLKDLL	196	10						3313
HPV18	E1	DADTEGNPFGT	635	11						3314
HPV18	E1	DAQVLHVL	78	8						3315
HPV18	E1	DATTTCWT	530	8						3316
HPV18	E1	DLHEEEDA	628	9						3317
HPV18	E1	DLHEEEDADT	628	11						3318
HPV18	E1	DLKVNNKQQA	203	11						3319
HPV18	E1	DLSEMVQWA	363	9	0.0003					3320
HPV18	E1	DLVRNFSDKT	228	11						3321
HPV18	E1	DMAFEYAL	381	8						3322
HPV18	E1	DMAFEYALL	381	9						3323
HPV18	E1	DMAFEYALLA	381	10						3324
HPV18	E1	DMVDFIDT	46	8						3325
HPV18	E1	DMVDFIDTQGT	46	11						3326
HPV18	E1	DTEGNPFGT	637	9						3327

Table VIII

Protein Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	DTELSPL	106	8						3328
HPV18	E1	DTELSPLQEI	106	11						3329
HPV18	E1	DTGSDMVDFI	42	10						3330
HPV18	E1	DTKVAMLDDA	522	10						3331
HPV18	E1	DTKVAMLDDAT	522	11						3332
HPV18	E1	DTPEWIQL	342	9						3333
HPV18	E1	DTPEWIQLRT	342	10						3334
HPV18	E1	DTPEWIQLRT	342	11						3335
HPV18	E1	DTQGTFCQA	52	10						3336
HPV18	E1	DTYGLSFT	220	8						3337
HPV18	E1	DTYGLSFTDL	220	10						3338
HPV18	E1	DTYGLSFTDLV	220	11						3339
HPV18	E1	DTYMARNAL	540	8						3340
HPV18	E1	DVISDEDENA	30	11						3341
HPV18	E1	EADNGGT	166	8						3342
HPV18	E1	EATQIQVT	143	8						3343
HPV18	E1	EATQIQVTT	143	9						3344
HPV18	E1	EISLNSGQKKA	115	11						3345
HPV18	E1	ELETAQAL	62	8						3346
HPV18	E1	ELETAQALFHA	62	11						3347
HPV18	E1	ELSPRLQEI	108	9	0.0004					3348
HPV18	E1	ELSPRLQEISL	108	11						3349
HPV18	E1	ELTDESDM	375	8						3350
HPV18	E1	ELTDESDMA	375	9						3351
HPV18	E1	EMVQWAFDNEL	366	11						3352
HPV18	E1	EQAELETA	59	8						3353
HPV18	E1	EQAELETAQA	59	10						3354
HPV18	E1	EQAELETAQAL	59	11						3355
HPV18	E1	ETAQALFHA	64	9						3356
HPV18	E1	ETCMLIQPKL	309	11						3357
HPV18	E1	EVDTELSPL	104	10						3358
HPV18	E1	EVEATQIQV	141	9						3359
HPV18	E1	EVEATQIQVT	141	10						3360
HPV18	E1	EVEATQIQVTT	141	11						3361
HPV18	E1	EVHNDAAQV	74	8						3362
HPV18	E1	EVHNDAAQVL	74	9						3363
HPV18	E1	EVHNDAAQVLHV	74	11						3364
HPV18	E1	EVMGDTPEWI	338	10						3365
HPV18	E1	FAGGSTENSPL	89	11						3366
HPV18	E1	FIHFQGA	497	8						3367
HPV18	E1	FIHFQGA	497	9	0.0130					3368
HPV18	E1	FIHFQGA	497	10	0.0057					3369
HPV18	E1	FIHFQGA	265	10	0.0320					3370
HPV18	E1	FIQGA	500	10	0.0460					3371
HPV18	E1	FIQGA	460	8						3372
HPV18	E1	FLGALKSFL	463	9	0.0450					3373

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	FLKGTPKKNCL	470	11						3374
HPV18	E1	FLKSNCOA	399	8						3375
HPV18	E1	FLKSNCAKYL	399	11						3376
HPV18	E1	FLRYQQIEFI	452	10	0.0025					3377
HPV18	E1	FLRYQQIEFIT	452	11						3378
HPV18	E1	FVNSTSHFWL	508	10	0.0620					3379
HPV18	E1	GALKSFLKGT	465	10						3380
HPV18	E1	GAMLAVFKDT	212	10						3381
HPV18	E1	GAVISFVNST	503	10						3382
HPV18	E1	GIDDSNFDL	356	9						3383
HPV18	E1	GISNISEV	332	8						3384
HPV18	E1	GISNISEVM	332	9						3385
HPV18	E1	GLSFTDLV	223	8						3386
HPV18	E1	GLSTLLHV	300	8						3387
HPV18	E1	GLSTLLHVPET	300	11						3388
HPV18	E1	GMSFIHFI	494	8						3389
HPV18	E1	GMSFIHFIQGA	121	9						3390
HPV18	E1	GQKKAKRRL	121	11						3391
HPV18	E1	GQKKAKRRLFT	121	11						3392
HPV18	E1	GTEGNSSV	172	9						3393
HPV18	E1	GTFCEQAEI	55	9						3394
HPV18	E1	GTFCEQAELET	55	11						3395
HPV18	E1	GTGCGWFYV	11	10	0.0006					3396
HPV18	E1	GTPKKNCL	473	8						3397
HPV18	E1	GTPKKNCLV	473	9						3398
HPV18	E1	GTSDNSNI	182	8						3399
HPV18	E1	GTSDNSNIENV	182	11						3400
HPV18	E1	GVLLALL	279	8						3401
HPV18	E1	HAQEVHND	71	9						3402
HPV18	E1	HAQEVHND	71	11						3403
HPV18	E1	HAQEVHNDQV	270	11						3404
HPV18	E1	HIQCLDCKWGV	83	8						3405
HPV18	E1	HVLKRKFA	306	8						3406
HPV18	E1	HVPETCML	306	8						3407
HPV18	E1	HVPETCMLI	254	8						3408
HPV18	E1	IAEGFKTL	254	8						3409
HPV18	E1	IAEGFKTLI	254	9	0.0003					3410
HPV18	E1	IAQLKDLL	198	8						3411
HPV18	E1	IAQLKDLLKV	198	10						3412
HPV18	E1	ILLTNIHPA	569	10	0.0800					3413
HPV18	E1	ILYAHIOCL	266	9	0.0810					3414
HPV18	E1	IQCLDCKWGV	271	10						3415
HPV18	E1	IQCLDCKWGV	271	11						3416
HPV18	E1	IQGAVISFV	501	9						3417
HPV18	E1	IQKCPPI	562	8						3418
HPV18	E1	IQKCPPI	562	9						3419
HPV18	E1	IQKCPPI	562	10						3419

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	IQLKCPILLT	562	11						3420
HPV18	E1	IQPFILYA	262	8						3421
HPV18	E1	IQPFILYAH	262	10						3422
HPV18	E1	IQPPKLRSSV	314	10						3423
HPV18	E1	IQPPKLRSSVA	314	11						3424
HPV18	E1	IQRLTIQHGI	347	11						3425
HPV18	E1	ITFLGALKSFL	461	11						3426
HPV18	E1	ITVFEFNA	590	9						3427
HPV18	E1	IVDKKTGDV	23	9						3428
HPV18	E1	IVDKKTGDVI	23	10						3429
HPV18	E1	IVQFLRYQQI	449	10						3430
HPV18	E1	KAKRRLLT	124	8						3431
HPV18	E1	KAKRRLLFTI	124	9						3432
HPV18	E1	KIDEGGDWRPI	439	11						3433
HPV18	E1	KLRAGQNRHPL	647	11						3434
HPV18	E1	KLRSSVA	318	8						3435
HPV18	E1	KLRSSVAAL	318	9	0.0003					3436
HPV18	E1	KQGAMLAV	210	8						3437
HPV18	E1	KTLIQPF	259	8						3438
HPV18	E1	KTLIQPFIL	259	9						3439
HPV18	E1	KTLIQPFILYA	259	11						3440
HPV18	E1	KTCTDWDV	237	8						3441
HPV18	E1	KTCTDWDVT	237	9						3442
HPV18	E1	KTCTDWDVTA	237	10						3443
HPV18	E1	KTCTDWDVTAI	237	11						3444
HPV18	E1	KVAMLLDDA	524	8						3445
HPV18	E1	KVAMLLDDAT	524	9						3446
HPV18	E1	KVAMLLDDATT	524	10						3447
HPV18	E1	KVAMLLDDATTT	524	11						3448
HPV18	E1	KVNKKQGA	206	8						3449
HPV18	E1	KVNKKQGAM	206	9						3450
HPV18	E1	KVNKKQGAML	206	10						3451
HPV18	E1	KVNKKQGAMLA	206	11						3452
HPV18	E1	LADSNNA	389	8						3453
HPV18	E1	LADSNNA	389	9						3454
HPV18	E1	LADSNNA	389	10						3455
HPV18	E1	LADSNNA	389	11						3456
HPV18	E1	LAVFKDITYGL	215	10						3457
HPV18	E1	LIQLKCPPI	561	9	0.0004					3458
HPV18	E1	LIQLKCPPII	561	10						3459
HPV18	E1	LIQLKCPPIII	561	11						3460
HPV18	E1	LIQPFILYA	261	9						3461
HPV18	E1	LIQPFILYAH	261	11						3462
HPV18	E1	LIQPFILYAH	313	11						3463
HPV18	E1	LIQPPKLRSSV	388	9						3464
HPV18	E1	LLADSNNA	388	10						3465
HPV18	E1	LLADSNNA	388	11						3466

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	LLHVPETCM	304	9						3466
HPV18	E1	LLHVPETCML	304	10						3467
HPV18	E1	LLHVPETCMLI	304	11						3468
HPV18	E1	LLKVNKQGA	204	10						3469
HPV18	E1	LLKVNKQKQAM	204	11						3470
HPV18	E1	LLRYKCGKSRL	285	11						3471
HPV18	E1	LLTTNIHPA	570	9	0.1800					3472
HPV18	E1	LTDESMA	376	8						3473
HPV18	E1	LTDTKVAM	520	8						3474
HPV18	E1	LTDTKVAML	520	9						3475
HPV18	E1	LTIQHGI	350	8						3476
HPV18	E1	LTNIHPA	571	8						3477
HPV18	E1	LTVAKGLST	295	9						3478
HPV18	E1	LTVAKGLSTL	295	10						3479
HPV18	E1	LTVAKGLSTLL	295	11						3480
HPV18	E1	LVFCGPANT	480	9						3481
HPV18	E1	LVRNFKSDKT	229	10						3482
HPV18	E1	LVRNFKSDKIT	229	11						3483
HPV18	E1	MAFEYALL	382	8						3484
HPV18	E1	MAFEYALLA	382	9						3485
HPV18	E1	MLAVFKDT	214	8						3486
HPV18	E1	MLAVFKDTYGL	214	11						3487
HPV18	E1	MLDDATT	527	8						3488
HPV18	E1	MLDDATTTCWT	527	11						3489
HPV18	E1	MLIQPKL	312	8						3490
HPV18	E1	MVDFIDTQGT	47	10						3491
HPV18	E1	MVQWAFDNEL	367	10						3492
HPV18	E1	MVQWAFDNELT	367	11						3493
HPV18	E1	NALDGNPI	545	8						3494
HPV18	E1	NALDGNPISI	545	10						3495
HPV18	E1	NALDTGSDM	39	9						3496
HPV18	E1	NALDTGSDMV	39	10						3497
HPV18	E1	NIENVNPQCT	188	10						3498
HPV18	E1	NIENVNPQCTI	188	11						3499
HPV18	E1	NISEVMGDT	335	9						3500
HPV18	E1	NTGKSYFGM	487	9						3501
HPV18	E1	NVCSGGST	158	8						3502
HPV18	E1	NVCSGGSTEAL	158	10						3503
HPV18	E1	NVCSGGSTEAI	158	11						3504
HPV18	E1	NVNPQCTI	191	8						3505
HPV18	E1	NVNPQCTIA	191	9						3506
HPV18	E1	NVNPQCTIAQL	191	11						3507
HPV18	E1	PAKDNRPYL	577	10						3508
HPV18	E1	PANTGKSYFGM	485	11						3509
HPV18	E1	PILLTTNI	568	8						3510
HPV18	E1	PILLTTNIHPA	568	11						3511

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	PISDRKHKPL	551	11						3512
HPV18	E1	PIVQLRYQOI	448	11						3513
HPV18	E1	PLGERLEV	98	8						3514
HPV18	E1	PLGERLEVDT	98	10						3515
HPV18	E1	PLIQLKCPPI	560	10						3516
HPV18	E1	PLIQLKCPPIL	560	11						3517
HPV18	E1	PLTDTKVA	519	8						3518
HPV18	E1	PLTDTKVAM	519	9						3519
HPV18	E1	PLTDTKVAML	519	10						3520
HPV18	E1	PQCTIAQL	194	8						3521
HPV18	E1	PQCTIAQLKDL	194	11						3522
HPV18	E1	PTIAEGFKT	252	9						3523
HPV18	E1	PTIAEGFKTL	252	10						3524
HPV18	E1	PTIAEGFKTLI	252	11						3525
HPV18	E1	QAELETAQA	60	9						3526
HPV18	E1	QAELETAQAL	60	10						3527
HPV18	E1	QAIVDKKT	21	8						3528
HPV18	E1	QAIVDKKTGDV	21	11						3529
HPV18	E1	QAKYLLKDCAT	405	9						3530
HPV18	E1	QAKYLLKDCAT	405	10						3531
HPV18	E1	QAKYLLKDCATM	405	11						3532
HPV18	E1	QALFHAQEV	67	9	0.0002					3533
HPV18	E1	QIEFITFL	457	8						3534
HPV18	E1	QIEFITFLGA	457	10						3535
HPV18	E1	QIEFITFLGAL	457	11						3536
HPV18	E1	QLKCPPIL	563	8						3537
HPV18	E1	QLKCPPILL	563	9	0.0003					3538
HPV18	E1	QLKCPPILLT	563	10						3539
HPV18	E1	QLKCPPILLTT	563	11						3540
HPV18	E1	QLKDLLKV	200	8						3541
HPV18	E1	QMNMSQWI	426	8						3542
HPV18	E1	QQIEFITFL	456	9						3543
HPV18	E1	QQIEFITFLGA	456	11						3544
HPV18	E1	QVLHVLKRKFA	80	11						3545
HPV18	E1	RAGQNHRL	649	9						3546
HPV18	E1	RAQKRQNMNM	421	9						3547
HPV18	E1	RITVFEFPA	589	10						3548
HPV18	E1	RLDLHEEEDA	626	11						3549
HPV18	E1	RLEVDTEL	102	8						3550
HPV18	E1	RLTIQHGI	349	9						3551
HPV18	E1	RLTVAKGL	294	8						3552
HPV18	E1	RLTVAKGLST	294	10						3553
HPV18	E1	RLTVAKGLSTL	294	11						3554
HPV18	E1	RQNMMSQWI	425	9						3555
HPV18	E1	RTGISNISEV	330	10						3556
HPV18	E1	RTGISNISEVM	330	11						3557

Table VIII

AA02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	RTWSRLDL	622	8						3558
HPV18	E1	SIDRKHKPL	553	9						3559
HPV18	E1	SIDRKHKPLI	553	10						3560
HPV18	E1	SLNSGQKKA	117	9						3561
HPV18	E1	SQWIRFRCSKI	430	11						3562
HPV18	E1	STEADNNGGT	164	10						3563
HPV18	E1	STENSPLGERL	93	11						3564
HPV18	E1	STLLHVPET	302	9						3565
HPV18	E1	STLLHVPETCM	302	11						3566
HPV18	E1	STSHFWLEPL	511	10						3567
HPV18	E1	STSHFWLEPLT	511	11						3568
HPV18	E1	SVAALYWYRT	322	10						3569
HPV18	E1	SVDGTSDNSNI	179	11						3570
HPV18	E1	TAIFGVNPT	245	9						3571
HPV18	E1	TAIFGVNPTI	245	10						3572
HPV18	E1	TAIFGVNPTIA	245	11						3573
HPV18	E1	TAQALFHA	65	8						3574
HPV18	E1	TAQALFHAQEV	65	11						3575
HPV18	E1	TIAEGFKT	253	8						3576
HPV18	E1	TIAEGFKTL	253	9						3577
HPV18	E1	TIAEGFKTLI	253	10						3578
HPV18	E1	TIAQLKDL	197	8						3579
HPV18	E1	TIAQLKDLL	197	9						3580
HPV18	E1	TIAQLKDLLKV	197	11						3581
HPV18	E1	TLIQPFIL	260	8						3582
HPV18	E1	TLIQPFILYA	260	10						3583
HPV18	E1	TLLHVPET	303	8						3584
HPV18	E1	TLLHVPETCM	303	10						3585
HPV18	E1	TLLHVPETCML	303	11						3586
HPV18	E1	TMCKHYRRA	414	9						3587
HPV18	E1	TQGTFCQA	53	9						3588
HPV18	E1	TQGTFCQAEL	53	11						3589
HPV18	E1	TTCTDWT	238	8						3590
HPV18	E1	TTCTDWTATA	238	9						3591
HPV18	E1	TTCTDWTAT	238	10						3592
HPV18	E1	TTCWTYFDT	533	9						3593
HPV18	E1	TTCWTYFDTYM	533	11						3594
HPV18	E1	TNNGEHHGNV	150	10						3595
HPV18	E1	TTCWTYFDT	532	10						3596
HPV18	E1	TVAKGLST	296	8						3597
HPV18	E1	TVAKGLSTL	296	9						3598
HPV18	E1	TVAKGLSTLL	296	10						3599
HPV18	E1	TVFEFPNA	591	8						3600
HPV18	E1	VAALYWYRT	323	9						3601
HPV18	E1	VAALYWYRTGI	323	11						3602
HPV18	E1	VAKGLSTL	297	8						3603

0105 T 030 0205 T 0405 03
0205 T 030 0205 T 0405 03
Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E1	VAKGLSTLL	297	9						3604
HPV18	E1	VAKGLSTLLHV	297	11						3605
HPV18	E1	VAMLDDAT	525	8						3606
HPV18	E1	VAMLDDATT	525	9						3607
HPV18	E1	VAMLDDATT	525	10						3608
HPV18	E1	VISDDEDENA	31	10						3609
HPV18	E1	VISDDEDENAT	31	11						3610
HPV18	E1	VISFVNST	505	8						3611
HPV18	E1	VLHVLKRKFA	81	10						3612
HPV18	E1	VLKRKFAGGST	84	11						3613
HPV18	E1	VMGDTPEWI	339	9	0.0070					3614
HPV18	E1	VQAIVDKKT	20	9						3615
HPV18	E1	VQFLRYQQI	450	9						3616
HPV18	E1	VQWAFDNEL	368	9						3617
HPV18	E1	VQWAFDNELT	368	10						3618
HPV18	E1	VTAFGVNPT	244	10						3619
HPV18	E1	VTAFGVNPTI	244	11						3620
HPV18	E1	VTNGEHGNGV	149	11						3621
HPV18	E1	WAFDNELT	370	8						3622
HPV18	E1	WIQRLLTI	346	8						3623
HPV18	E1	WIRFRCSKI	432	9	0.0004					3624
HPV18	E1	WLEPLTDT	516	8						3625
HPV18	E1	WLEPLTDTKV	516	10						3626
HPV18	E1	WLEPLTDTKVA	516	11						3627
HPV18	E1	WTYFDTYM	536	8						3628
HPV18	E1	WTYFDTYMRNA	536	11						3629
HPV18	E1	WVTAIFGV	243	8						3630
HPV18	E1	WVTAIFGVNPT	243	11						3631
HPV18	E1	YALLADSNNA	386	11						3632
HPV18	E1	YLESRITY	585	8						3633
HPV18	E1	YLKDCATM	408	8						3634
HPV18	E1	YMRNALDGNPI	542	11						3635
HPV18	E1	YQIEFIT	455	8						3636
HPV18	E1	YQIEFITFL	455	10						3637
HPV18	E1	YVQAIVDKKT	19	10						3638
HPV18	E2	AAREHGIQT	49	9						3639
HPV18	E2	AAREHGIQTL	49	10						3640
HPV18	E2	AATPGHCGL	245	10						3641
HPV18	E2	AATPGHCGLA	245	11						3642
HPV18	E2	AILOMAL	76	8						3643
HPV18	E2	AILOMALQGL	76	11						3644
HPV18	E2	AIFFAAREHGI	45	11						3645
HPV18	E2	AIPDSVQI	351	8						3646
HPV18	E2	AIPDSVQIL	351	9						3647
HPV18	E2	AIPDSVQILV	351	10						3648
HPV18	E2	AQSRVKTEDWT	87	11						3649

Table VIII

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV18	E2	ATCVSHRGL	154	9						3650
HPV18	E2	ATQLVKQL	214	8						3651
HPV18	E2	ATQLVKQLQHT	214	11						3652
HPV18	E2	ATPGHCGL	246	9						3653
HPV18	E2	ATPGHCGLA	246	10						3654
HPV18	E2	CMTYVAWDSV	132	10						3655
HPV18	E2	CVSHRGLYYV	156	10						3656
HPV18	E2	DAGTWDKT	146	8						3657
HPV18	E2	DAGTWDKTA	146	9						3658
HPV18	E2	DAGTWDKTAT	146	10						3659
HPV18	E2	DIDSQIYWQL	29	11						3660
HPV18	E2	DISSTWHWT	315	9						3661
HPV18	E2	DISSTWHWTGA	315	11						3662
HPV18	E2	DTCEELWNT	100	9						3663
HPV18	E2	DTVSATQL	210	8						3664
HPV18	E2	DTVSATQLV	210	9						3665
HPV18	E2	ELQMALQGL	78	9						3666
HPV18	E2	ELQMALQGLA	78	10						3667
HPV18	E2	ELWNTPT	104	8						3668
HPV18	E2	ETLSERLSCV	6	10						3669
HPV18	E2	ETQRTKFL	340	8						3670
HPV18	E2	ETQRTKFLNT	340	10						3671
HPV18	E2	ETQRTKFLNTV	340	11						3672
HPV18	E2	EVHFGNNV	190	8						3673
HPV18	E2	EVHFGNNVI	190	9						3674
HPV18	E2	FAAREHGI	48	8						3675
HPV18	E2	FAAREHGIQT	48	10						3676
HPV18	E2	FAAREHGIQTL	48	11						3677
HPV18	E2	FLNTVAIPDSV	346	11						3678
HPV18	E2	GAGNEKTGI	324	9						3679
HPV18	E2	GAGNEKTGIL	324	10						3680
HPV18	E2	GAGNEKTGILT	324	11						3681
HPV18	E2	GILTVTYHSET	331	11						3682
HPV18	E2	GIQTLNHQV	54	9						3683
HPV18	E2	GIQTLNHQVV	54	10						3684
HPV18	E2	GLAEKQHCGPV	253	11						3685
HPV18	E2	GLAQRKYKT	85	9						3686
HPV18	E2	GLYYVKEGYNT	161	11						3687
HPV18	E2	GTAKTYGQT	235	9						3688
HPV18	E2	GTAKTYGGTSA	235	11						3689
HPV18	E2	GTWDKTAT	148	8						3690
HPV18	E2	GTWDKTATCV	148	10						3691
HPV18	E2	GTWEVIFGNNV	187	11						3692
HPV18	E2	HLKGDRLNSL	291	9						3693
HPV18	E2	HQVVPAYNI	60	9						3694
HPV18	E2	HTPSPYSST	223	9						3695

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E2	HTSPYSSTV	223	10						3696
HPV18	E2	IIHLKGDNSL	289	11						3697
HPV18	E2	ILTVYHSET	332	10						3698
HPV18	E2	ILVGYMTM	358	8						3699
HPV18	E2	IQTLNHQV	55	8						3700
HPV18	E2	IQTLNHQVV	55	9						3701
HPV18	E2	IQTLNHQVVP	55	11						3702
HPV18	E2	KAHKAIEL	72	8						3703
HPV18	E2	KAHKAIELQM	72	10						3704
HPV18	E2	KAHKAIELQMA	72	11						3705
HPV18	E2	KAIELQMA	75	8						3706
HPV18	E2	KAIELQMAL	75	9						3707
HPV18	E2	KLCSGNIT	280	8						3708
HPV18	E2	KLCSGNITPI	280	10						3709
HPV18	E2	KLCSGNITPII	280	11						3710
HPV18	E2	KQHCQPNPL	257	10						3711
HPV18	E2	KQHCQPNPLI	257	11						3712
HPV18	E2	KTATCVSHRGL	152	11						3713
HPV18	E2	KTEDWTLQDT	92	10						3714
HPV18	E2	KTGLTIVT	329	8						3715
HPV18	E2	KTYGQTS	238	8						3716
HPV18	E2	KTYGQTSAA	238	9						3717
HPV18	E2	KTYGQTSAA	238	10						3718
HPV18	E2	LAEKQHCQPV	254	10						3719
HPV18	E2	LAQRYKT	86	8						3720
HPV18	E2	LIRWENAI	39	8						3721
HPV18	E2	LIRWENAIFFA	39	11						3722
HPV18	E2	LLGAATPT	266	8						3723
HPV18	E2	LQDTCEEL	98	8						3724
HPV18	E2	LQDTCEELWNT	98	11						3725
HPV18	E2	LQGLAQSRKYT	83	11						3726
HPV18	E2	LQHTSPYSST	221	11						3727
HPV18	E2	LQMALQGL	79	8						3728
HPV18	E2	LQMALQGLA	79	9						3729
HPV18	E2	LTVTYHSET	333	9						3730
HPV18	E2	LVKQLQHT	217	8						3731
HPV18	E2	MOTPKETL	1	8						3732
HPV18	E2	MTDAGTWDKT	144	10						3733
HPV18	E2	MTDAGTWDKTA	144	11						3734
HPV18	E2	MTYVAWDSV	133	9						3735
HPV18	E2	NISKKAHKA	67	10						3736
HPV18	E2	NISKKAHKA	67	11						3737
HPV18	E2	NISKKAHKA	285	8						3738
HPV18	E2	NTTPIHL	348	9						3739
HPV18	E2	NTVAIPDSV	348	11						3740
HPV18	E2	NTVAIPDSVQI	196	9						3741
HPV18	E2	NVIDCNDMS								

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E2	PAYNISKSA	64	10						3742
HPV18	E2	PLLGAATPT	265	9						3743
HPV18	E2	PTGNKKRRKL	272	10						3744
HPV18	E2	PTHCFKKGQQT	110	11						3745
HPV18	E2	PVNPLLGA	262	8						3746
HPV18	E2	PVNPLLGA	262	9						3747
HPV18	E2	PVNPLLGAAT	262	10						3748
HPV18	E2	QILVGYMT	357	8						3749
HPV18	E2	QILVGYMTM	357	9						3750
HPV18	E2	QIYWQLI	33	8						3751
HPV18	E2	QLIRWENA	38	8						3752
HPV18	E2	QLIRWENAI	38	9						3753
HPV18	E2	QLVKQLQHT	216	9						3754
HPV18	E2	QMALQGLA	80	8						3755
HPV18	E2	QTLNHQVV	56	8						3756
HPV18	E2	QTLNHQVIPA	56	10						3757
HPV18	E2	QTPKETLSERL	2	11						3758
HPV18	E2	QVVPAYNI	61	8						3759
HPV18	E2	RLSCVQDKI	11	9						3760
HPV18	E2	RLSCVQDKII	11	10						3761
HPV18	E2	RTKFLNTV	343	8						3762
HPV18	E2	RTKFLNTVA	343	9						3763
HPV18	E2	RTKFLNTVAI	343	10						3764
HPV18	E2	SAATPGHCGL	244	11						3765
HPV18	E2	SATQLVKQL	213	9						3766
HPV18	E2	SLKCLRYRL	298	9						3767
HPV18	E2	SMCSTSDDT	203	9						3768
HPV18	E2	SMCSTSDDTV	203	10						3769
HPV18	E2	SQIYWQL	32	8						3770
HPV18	E2	SQIYWQLI	32	9						3771
HPV18	E2	STSDDTVSA	206	9						3772
HPV18	E2	STSDDTVSAT	206	10						3773
HPV18	E2	STVSVGTA	230	8						3774
HPV18	E2	STVSVGTAKT	230	10						3775
HPV18	E2	STWHWTGA	318	8						3776
HPV18	E2	SVGTAKTYGQT	233	11						3777
HPV18	E2	SVQILVGYM	355	9						3778
HPV18	E2	SVQILVGYMT	355	10						3779
HPV18	E2	SVQILVGYMTM	355	11						3780
HPV18	E2	SVYYMTDA	140	8						3781
HPV18	E2	SVYYMTDAGT	140	10						3782
HPV18	E2	TAKTYGQT	236	8						3783
HPV18	E2	TAKTYGQTSAA	236	10						3784
HPV18	E2	TAKTYGQTSAA	236	11						3785
HPV18	E2	TATCVSHRGL	153	10						3786
HPV18	E2	TLNHQVIPA	57	9						3787

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E2	TLQDTCEEL	97	9						3788
HPV18	E2	TLSERLSCV	7	9						3789
HPV18	E2	TQLVKQLQHT	215	10						3790
HPV18	E2	TQRTKFLNT	341	9						3791
HPV18	E2	TQRTKFLNTV	341	10						3792
HPV18	E2	TQRTKFLNTVA	341	11						3793
HPV18	E2	TVAIPDSV	349	8						3794
HPV18	E2	TVAIPDSVQI	349	10						3795
HPV18	E2	TVAIPDSVQIL	349	11						3796
HPV18	E2	TVSATQLV	211	8						3797
HPV18	E2	TVSATQLVKQL	211	11						3798
HPV18	E2	TVSVGTAKT	231	9						3799
HPV18	E2	TVTYHSET	334	8						3800
HPV18	E2	TVTYHSETQRT	334	11						3801
HPV18	E2	VAIPDSVQI	350	9						3802
HPV18	E2	VAIPDSVQIL	350	10						3803
HPV18	E2	VAIPDSVQILV	350	11						3804
HPV18	E2	VAWDSVYYM	136	9						3805
HPV18	E2	VAWDSVYYMT	136	10						3806
HPV18	E2	VIDCNDMS	197	8						3807
HPV18	E2	VIDCNDMSMCST	197	11						3808
HPV18	E2	VQILVGYM	356	8						3809
HPV18	E2	VQILVGYMT	356	9						3810
HPV18	E2	VQILVGYMTM	356	10						3811
HPV18	E2	VTYHSETQRT	335	10						3812
HPV18	E2	WQLIRWENA	37	9						3813
HPV18	E2	WQLIRWENAI	37	10						3814
HPV18	E2	WTGAGNEKT	322	9						3815
HPV18	E2	WTGAGNEKTGI	322	11						3816
HPV18	E2	WTLQDTCEEL	96	10						3817
HPV18	E2	YMTDAGTWDKT	143	11						3818
HPV18	E2	YVAWDSVYYM	135	10						3819
HPV18	E2	YVAWDSVYYMT	135	11						3820
HPV18	E2	YVKEGYNT	164	8						3821
HPV18	E2	YVKEGYNTFYI	164	11						3822
HPV18	E5	ATAFTVYV	47	8						3823
HPV18	E5	CAYAWVLV	29	8						3824
HPV18	E5	CAYAWVLVVFV	29	10						3825
HPV18	E5	CMCAYAWV	27	8						3826
HPV18	E5	CMCAYAWVL	27	9						3827
HPV18	E5	CMCAYAWVLV	27	10						3828
HPV18	E5	CMYVCCCHV	13	8						3829
HPV18	E5	CMYVCCCHVPL	13	10						3830
HPV18	E5	CMYVCCCHVPLL	13	11						3831
HPV18	E5	CVCMYVCCCHV	11	10						3832
HPV18	E5	FLFCFCVCM	6	9						3833

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E5	FLFCFCVCMYV	6	11						3834
HPV18	E5	FLLPMLLL	57	8						3835
HPV18	E5	FLLPMLLLHI	57	10						3836
HPV18	E5	FTVYVFCFL	50	9						3837
HPV18	E5	FTVYVFCFL	50	10						3838
HPV18	E5	FVYIVVIT	37	8						3839
HPV18	E5	FVYIVVITSPA	37	11						3840
HPV18	E5	HHHAILSL	65	8						3841
HPV18	E5	HVPLLPSPV	19	8						3842
HPV18	E5	HVPLLPSPVCM	19	10						3843
HPV18	E5	ITSPATAFT	43	9						3844
HPV18	E5	ITSPATAFTV	43	10						3845
HPV18	E5	IVVITSPA	40	8						3846
HPV18	E5	IVVITSPAT	40	9						3847
HPV18	E5	IVVITSPATA	40	10						3848
HPV18	E5	LIFLFCFCV	4	9						3849
HPV18	E5	LIFLFCFCVCM	4	11						3850
HPV18	E5	LLHHAIL	63	8						3851
HPV18	E5	LLHHAILSL	63	10						3852
HPV18	E5	LLHHIAI	62	8						3853
HPV18	E5	LLHHIAI	62	9						3854
HPV18	E5	LLHHIAISL	62	11						3855
HPV18	E5	LLPMLLIHI	58	9						3856
HPV18	E5	LLPMLLIHHA	58	11						3857
HPV18	E5	LLPSVCMCA	22	9						3858
HPV18	E5	LLPSVCMCAYA	22	11						3859
HPV18	E5	LVFVYIVV	35	8						3860
HPV18	E5	LVFVYIVVI	35	9						3861
HPV18	E5	LVFVYIVVIT	35	10						3862
HPV18	E5	MLLLHIHA	61	8						3863
HPV18	E5	MLLLHIHAI	61	9						3864
HPV18	E5	MLLLHIHAIL	61	10						3865
HPV18	E5	PATAFTVYV	46	9						3866
HPV18	E5	PLLPSPVCM	21	8						3867
HPV18	E5	PLLPSPVCMCA	21	10						3868
HPV18	E5	PMLLIHHA	60	9						3869
HPV18	E5	PMLLIHIAI	60	10						3870
HPV18	E5	PMLLIHIAI	60	11						3871
HPV18	E5	SLIFLFCFCV	3	10						3872
HPV18	E5	SVCMCAYA	25	8						3873
HPV18	E5	SVCMCAYAWV	25	10						3874
HPV18	E5	SVCMCAYAWVL	25	11						3875
HPV18	E5	TAFTVYVFCFL	48	11						3876
HPV18	E5	TVYVFCFL	51	8						3877
HPV18	E5	TVYVFCFL	51	9						3878
HPV18	E5	TVYVFCFLPM	51	11						3879

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E5	VITSPATA	42	8						3880
HPV18	E5	VITSPATAFT	42	10						3881
HPV18	E5	VITSPATAFTV	42	11						3882
HPV18	E5	VLVFFVIV	34	8						3883
HPV18	E5	VLVFFVIVV	34	9						3884
HPV18	E5	VLVFFVIVVI	34	10						3885
HPV18	E5	VLVFFVIVVIT	34	11						3886
HPV18	E5	VVITSPAT	41	8						3887
HPV18	E5	VVITSPATA	41	9						3888
HPV18	E5	VVITSPATAFT	41	11						3889
HPV18	E5	WVLVFFVYI	33	8						3890
HPV18	E5	WVLVFFVIV	33	9						3891
HPV18	E5	WVLVFFVIVV	33	10						3892
HPV18	E5	WVLVFFVIVVI	33	11						3893
HPV18	E5	YAWVLVFFV	31	8						3894
HPV18	E5	YAWVLVFFVYI	31	10						3895
HPV18	E5	YAWVLVFFVIV	31	11						3896
HPV18	E5	YIVVITSPA	39	9						3897
HPV18	E5	YIVVITSPAT	39	10						3898
HPV18	E5	YIVVITSPATA	39	11						3899
HPV18	E5	YVCCHVPL	15	8						3900
HPV18	E5	YVCCFLLPML	15	9						3901
HPV18	E5	YVFCFLLPML	53	9						3902
HPV18	E5	YVFCFLLPMLL	53	10						3903
HPV18	E5	YVFCFLLPMLL	53	11						3904
HPV18	E6	CIDFYSRI	68	8	0.0001					3905
HPV18	E6	CIDFYSRIREL	68	11						3906
HPV18	E6	CLRCQKPL	105	8	0.0001					3907
HPV18	E6	CLRCQKPLNPA	105	11						3908
HPV18	E6	CQKPLNPA	108	8						3909
HPV18	E6	CQKPLNPAEKL	108	11						3910
HPV18	E6	CTELNTSL	18	8						3911
HPV18	E6	CTELNTSLQDI	18	11						3912
HPV18	E6	CVYCKTVL	32	8	0.0002					3913
HPV18	E6	CVYCKTVLEL	32	10	0.0001					3914
HPV18	E6	CVYCKTVLELT	32	11						3915
HPV18	E6	DIETCVYCKT	27	11						3916
HPV18	E6	DLCTELNT	16	8						3917
HPV18	E6	DLCTELNTSL	16	10	0.0001					3918
HPV18	E6	DLFVYRDSI	51	10	0.0001					3919
HPV18	E6	DTLEKLTNT	88	9	0.0001					3920
HPV18	E6	DTLEKLTNTGL	88	11						3921
HPV18	E6	EITCVYCKT	29	9	0.0001					3922
HPV18	E6	EITCVYCKTV	29	10	0.0002					3923
HPV18	E6	EITCVYCKTVL	29	11						3924
HPV18	E6	ELNTSLQDI	20	9	0.0001					3925

0305733 0305734 0305735 0305736 0305737 0305738 0305739 0305740 0305741 0305742 0305743 0305744 0305745 0305746 0305747 0305748 0305749 0305750 0305751 0305752 0305753 0305754 0305755 0305756 0305757 0305758 0305759 0305760 0305761 0305762 0305763 0305764 0305765 0305766 0305767 0305768 0305769 0305770 0305771

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E6	ELNTSLQDIEI	20	11						3926
HPV18	E6	ELRHYSDSV	77	9	0.0003					3927
HPV18	E6	ELTEVFIFA	40	9	0.0012					3928
HPV18	E6	EVFEFAFKDL	43	10	0.0009					3929
HPV18	E6	FAFKDLFV	47	8						3930
HPV18	E6	FAFKDLFV	47	9	0.0850					3931
HPV18	E6	FVYVYRDSI	53	8						3932
HPV18	E6	FVYVYRDSIPA	53	11						3933
HPV18	E6	GLYNLLIRCL	97	10	0.0036					3934
HPV18	E6	GQCHSCCNRA	136	10						3935
HPV18	E6	HAACHKCI	62	8						3936
HPV18	E6	HLNEKRRFHNI	120	11						3937
HPV18	E6	ITCVYCKT	30	8						3938
HPV18	E6	ITCVYCKTV	30	9						3939
HPV18	E6	ITCVYCKTVL	30	10						3940
HPV18	E6	KLPDLCTEL	13	9	0.0035					3941
HPV18	E6	KLPDLCTELNT	13	11						3942
HPV18	E6	KLNTTGLYNL	92	10	0.0048					3943
HPV18	E6	KLNTTGLYNLL	92	11	0.0043					3944
HPV18	E6	KTVLELTV	36	9						3945
HPV18	E6	LIRCLRCQKPL	102	11						3946
HPV18	E6	LQDIEITCV	25	9						3947
HPV18	E6	LQRRRETQV	150	9						3948
HPV18	E6	LTEVFIFA	41	8						3949
HPV18	E6	LTNTGLYNL	93	9						3950
HPV18	E6	LTNTGLYNLL	93	10						3951
HPV18	E6	LTNTGLYNLLI	93	11						3952
HPV18	E6	MARFEDPT	1	8						3953
HPV18	E6	NTGLYNLL	95	8						3954
HPV18	E6	NTGLYNLLI	95	9						3955
HPV18	E6	NTSLQDIEI	22	9						3956
HPV18	E6	NTSLQDIEIT	22	10	0.0001					3957
HPV18	E6	PAEKLRLHL	114	8						3958
HPV18	E6	PLNPAEKL	111	8	0.0001					3959
HPV18	E6	PLNPAEKLRLHL	111	11	0.0001					3960
HPV18	E6	PTRRPYKL	7	8						3961
HPV18	E6	PTRRPYKLPLDL	7	11						3962
HPV18	E6	RLQRRRET	149	8						3963
HPV18	E6	RLQRRRETQV	149	10						3964
HPV18	E6	RQERLQRRRET	146	11	0.0001					3965
HPV18	E6	SIPHAACHKCI	59	11						3966
HPV18	E6	SLQDIEIT	24	8						3967
HPV18	E6	SLQDIEITCV	24	10	0.0250					3968
HPV18	E6	SVYGDITLKL	84	10	0.0028					3969
HPV18	E6	SVYGDITLKL	84	11						3970
HPV18	E6	TLEKLTNT	89	8						3971

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 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E6	TLEKLTNTGL	89	10	0.0004					3972
HPV18	E6	TVLELTV	37	8	0.0010					3973
HPV18	E6	VLELTVFEFA	38	11						3974
HPV18	E6	VVYRDSIPHA	54	10	0.0003					3975
HPV18	E6	VVYRDSIPHAA	54	11						3976
HPV18	E7	ATLQDIVL	6	8						3977
HPV18	E7	ATLQDIVLHL	6	10						3978
HPV18	E7	CMCKCEA	63	8	0.0005					3979
HPV18	E7	CMCKCEARI	63	10	0.0020					3980
HPV18	E7	DLICHEQL	24	8	0.0001					3981
HPV18	E7	DLRAFAQQL	82	8	0.0001					3982
HPV18	E7	DLRAFAQQLFL	82	10	0.0010					3983
HPV18	E7	EARIKLVV	69	8						3984
HPV18	E7	EIDGVNHQHL	40	10	0.0001					3985
HPV18	E7	FLNTLSFV	90	8	0.0079					3986
HPV18	E7	FQQLFLNT	86	8						3987
HPV18	E7	FQQLFLNTL	86	9						3988
HPV18	E7	GVNHQHLPA	43	9	0.0001					3989
HPV18	E7	HLEPQNEI	14	8	0.0001					3990
HPV18	E7	HLEPQNEIPV	14	10	0.0001					3991
HPV18	E7	HQHLPARRA	46	9						3992
HPV18	E7	IVLHLEPQNEI	11	11						3993
HPV18	E7	KATLQDIV	5	8						3994
HPV18	E7	KATLQDIVL	5	9						3995
HPV18	E7	KATLQDIVLHL	5	11						3996
HPV18	E7	KLVESSA	73	8	0.0001					3997
HPV18	E7	KLVESSADDL	73	11	0.0001					3998
HPV18	E7	LQDIVLHL	8	8						3999
HPV18	E7	LVVESSADDL	74	10	0.0001					4000
HPV18	E7	MLCMCKCEA	61	10	0.0016					4001
HPV18	E7	NTLSFVCPWCA	92	11						4002
HPV18	E7	PARRAEPQRHT	50	11						4003
HPV18	E7	PQNEIPVDL	17	9						4004
HPV18	E7	PQNEIPVDLL	17	10						4005
HPV18	E7	PQRHTMLCM	56	9						4006
HPV18	E7	PVDLLICHEQL	22	10						4007
HPV18	E7	QLFLNTLSFV	88	10	0.0001					4008
HPV18	E7	QLFLNTL	87	8	0.1100					4009
HPV18	E7	QLFLNTLSFV	87	11						4010
HPV18	E7	RAEPQRHT	53	8						4011
HPV18	E7	RAEPQRHTM	53	9						4012
HPV18	E7	RAEPQRHTML	53	10						4013
HPV18	E7	RAEQQLFL	84	8						4014
HPV18	E7	RAEQQLFLNT	84	10	0.0003					4015
HPV18	E7	RAEQQLFLNTL	84	11						4016
HPV18	E7	RIKLVVESA	71	10						4017

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	E7	SADDLRAFQQL	79	11						4018
HPV18	E7	TLQDIVLHL	7	9	3.0000					4019
HPV18	E7	TLSFVCPWCA	93	10	0.0027					4020
HPV18	E7	TMLCMCKCEA	60	11						4021
HPV18	E7	VLHLEPQNEI	12	10	0.0001					4022
HPV18	E7	VVLESSADDL	75	9	0.0003					4023
HPV18	E7	VVLESSADDLRA	75	11						4024
HPV18	L1	AATSNVSESV	195	10						4025
HPV18	L1	AIGEHWAKGT	225	10						4026
HPV18	L1	AIGEHWAKGTA	225	11						4027
HPV18	L1	AITCQKDA	487	8						4028
HPV18	L1	AITCQKDA	487	9						4029
HPV18	L1	AITCQKDAAPA	487	11						4030
HPV18	L1	ALWRPSDNT	63	9						4031
HPV18	L1	ALWRPSDNTV	63	10						4032
HPV18	L1	AMDFSTLQDT	268	10						4033
HPV18	L1	AQHNGV	377	8						4034
HPV18	L1	ATKFKQYSRHV	419	11						4035
HPV18	L1	ATSNVSESV	196	9						4036
HPV18	L1	ATTSSKPA	552	8						4037
HPV18	L1	ATTSSKPAKRV	552	11						4038
HPV18	L1	CAPAIGEHW	222	10						4039
HPV18	L1	CASTQSPV	406	8						4040
HPV18	L1	CILGCAPA	218	8						4041
HPV18	L1	CILGCAPAI	218	9						4042
HPV18	L1	CLRREQLFA	310	9						4043
HPV18	L1	CLYTRVLI	2	8						4044
HPV18	L1	CLYTRVLIL	2	9						4045
HPV18	L1	CQKDAAPA	490	8						4046
HPV18	L1	CQSICKYPDYL	286	11						4047
HPV18	L1	CTITLTADV	441	9						4048
HPV18	L1	CTITLTADV	441	10						4049
HPV18	L1	CVYSPSPSGSI	350	11						4050
HPV18	L1	DLKEKFSL	512	8						4051
HPV18	L1	DLKEKFSLDL	512	10						4052
HPV18	L1	DLQFIFQL	433	8						4053
HPV18	L1	DLQFIFQLCT	433	10						4054
HPV18	L1	DLQFIFQLCTI	433	11						4055
HPV18	L1	DMVDITGYGA	260	9						4056
HPV18	L1	DMVDITGYGAM	260	10						4057
HPV18	L1	DQYPLGRKFL	522	10						4058
HPV18	L1	DQYPLGRKFLV	522	11						4059
HPV18	L1	DTESHA	189	8						4060
HPV18	L1	DTESHAAT	189	9						4061
HPV18	L1	DTGYGAMDFST	263	11						4062
HPV18	L1	DTKCEVPL	276	8						4063

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L1	DTKCEVPLDI	276	10						4064
HPV18	L1	DTSIYNPET	148	9						4065
HPV18	L1	DTTPSTNL	396	8						4066
HPV18	L1	DTTPSTNLT	396	9						4067
HPV18	L1	DTTPSTNLTI	396	10						4068
HPV18	L1	DTVPQSLYI	330	9						4069
HPV18	L1	DTYRFVQSV	478	9						4070
HPV18	L1	DTYRFVQSV	478	10						4071
HPV18	L1	DTYRFVQSV	478	11						4072
HPV18	L1	DTYRFVQSV	478	11						4073
HPV18	L1	DVMSYIHS	448	9						4074
HPV18	L1	DVRDNVSV	203	8						4075
HPV18	L1	EIGRGQPL	167	8						4076
HPV18	L1	EIGRGQPLGV	167	10						4077
HPV18	L1	ETQLVWA	155	8						4078
HPV18	L1	ETQLVWACA	155	10						4079
HPV18	L1	EVPLDICQSI	280	10						4080
HPV18	L1	FARHFWNRA	317	9						4081
HPV18	L1	FARHFWNRAGT	317	11						4082
HPV18	L1	FIFQLCTI	436	8						4083
HPV18	L1	FIFQLCTIT	436	9						4084
HPV18	L1	FIFQLCTITL	436	10						4085
HPV18	L1	FIFQLCTITLT	436	11						4086
HPV18	L1	FLRNVNVEPI	49	10						4087
HPV18	L1	FQLCTITL	438	8						4088
HPV18	L1	FQLCTITLT	438	9						4089
HPV18	L1	FQLCTITLTA	438	10						4090
HPV18	L1	FVQSVAIT	482	8						4091
HPV18	L1	FVTVDIT	391	8						4092
HPV18	L1	FVTVDITPST	391	11						4093
HPV18	L1	GAMDFSTL	267	8						4094
HPV18	L1	GAMDFSTLQDT	267	11						4095
HPV18	L1	GLRRKPTI	535	8						4096
HPV18	L1	GLSGHPFYNKL	177	11						4097
HPV18	L1	GMPASPGSCV	342	10						4098
HPV18	L1	GQPLGVGL	171	8						4099
HPV18	L1	GTACKSRPL	233	9						4100
HPV18	L1	GTMGDTVPQSL	326	11						4101
HPV18	L1	GVCWLNQL	383	8						4102
HPV18	L1	GVCWLNQLFV	383	10						4103
HPV18	L1	GVCWLNQLFVT	383	11						4104
HPV18	L1	GVEIGRGQPL	165	10						4105
HPV18	L1	GVPPPTT	467	8						4106
HPV18	L1	GVPPPTTSL	467	10						4107
HPV18	L1	GVPPPTTSLV	467	11						4108
HPV18	L1	HAATSNVSE	194	11						4109
HPV18	L1	HAGSSRL	97	8						

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L1	HAGSSRLLT	97	9						4110
HPV18	L1	HAGSSRLLT	97	10						4111
HPV18	L1	HIICGHYI	38	9						4112
HPV18	L1	HIICGHYII	38	10						4113
HPV18	L1	HIICGHYIIL	38	11						4114
HPV18	L1	HLPLYGPL	13	9						4115
HPV18	L1	HVEEYDLQFI	428	10						4116
HPV18	L1	IICGHYII	40	8						4117
HPV18	L1	IICGHYIIL	40	9						4118
HPV18	L1	IICGHYIILFL	40	11						4119
HPV18	L1	IIICGHYI	39	8						4120
HPV18	L1	IIICGHYII	39	9						4121
HPV18	L1	IIICGHYIIL	39	10						4122
HPV18	L1	IILFLRNV	46	8						4123
HPV18	L1	IILFLRNVNV	46	10						4124
HPV18	L1	ILEDWNFGV	460	9						4125
HPV18	L1	IILFLRNVNV	47	9						4126
HPV18	L1	ILGCAPAI	219	8						4127
HPV18	L1	ILHYHLLPL	9	9						4128
HPV18	L1	ILVYMVHI	32	8						4129
HPV18	L1	ILVYMVHII	32	9						4130
HPV18	L1	ILVYMVHIII	32	10						4131
HPV18	L1	ITCQKDA	488	8						4132
HPV18	L1	ITCQKDAAPA	488	10						4133
HPV18	L1	ITLTADVM	443	8						4134
HPV18	L1	ITLTADVMSYI	443	11						4135
HPV18	L1	IVTSDSQL	360	8						4136
HPV18	L1	KAQHNNGV	376	9						4137
HPV18	L1	KLDDTESSHA	186	10						4138
HPV18	L1	KLDDTESSHAA	186	11						4139
HPV18	L1	KLKFWNVDL	505	9						4140
HPV18	L1	KQDIPKVA	120	9						4141
HPV18	L1	KQTQLCIL	213	8						4142
HPV18	L1	KQTQLCILGCA	213	11						4143
HPV18	L1	KVSAYQYRV	125	9						4144
HPV18	L1	LILHYHLL	8	8						4145
HPV18	L1	LILHYHLLPL	8	10						4146
HPV18	L1	LLPLYGPL	14	8						4147
HPV18	L1	LLTVGNPYFRV	103	11						4148
HPV18	L1	LQDTKCEV	274	8						4149
HPV18	L1	LQDTKCEVPL	274	10						4150
HPV18	L1	LQFIFQLCT	434	9						4151
HPV18	L1	LQFIFQLCTI	434	10						4152
HPV18	L1	LQFIFQLCTIT	434	11						4153
HPV18	L1	LTADVMSYI	445	9						4154
HPV18	L1	LTCASTQSPV	403	11						4155

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV18	L1	LTVGNPYFRV	104	10						4156
HPV18	L1	LVDTRYRFV	476	8						4157
HPV18	L1	LVDTRYRFVQSV	476	11						4158
HPV18	L1	LVQAGLRKKPT	531	11						4159
HPV18	L1	LVWACAGV	159	8						4160
HPV18	L1	LVWACAGVEI	159	10						4161
HPV18	L1	LVYMVHHI	33	8						4162
HPV18	L1	LVYMVHHI	33	9						4163
HPV18	L1	MALWRPSDNT	62	10						4164
HPV18	L1	MALWRPSDNTV	62	11						4165
HPV18	L1	MVDTRYGA	261	8						4166
HPV18	L1	MVDTRYGAM	261	9						4167
HPV18	L1	MVHHICGHI	36	11						4168
HPV18	L1	NLTICAST	402	8						4169
HPV18	L1	NQLFVTVV	388	8						4170
HPV18	L1	NQLFVTVVDT	388	10						4171
HPV18	L1	NQLFVTVVDTT	388	11						4172
HPV18	L1	NTDDYVTPT	84	9						4173
HPV18	L1	NTDDYVTPTSI	84	11						4174
HPV18	L1	NTVLEDGDM	253	9						4175
HPV18	L1	NTVLEDGDMV	253	10						4176
HPV18	L1	NTVYLPPPSV	70	10						4177
HPV18	L1	NTVYLPPPSVA	70	11						4178
HPV18	L1	NVDLKEKESL	510	10						4179
HPV18	L1	NVFIPLQM	54	9						4180
HPV18	L1	NVFIPLQMA	54	10						4181
HPV18	L1	NVFIPLQMAL	54	11						4182
HPV18	L1	NVNVFIPL	52	9						4183
HPV18	L1	NVNVFIPLQM	52	11						4184
HPV18	L1	NVSESDVRDNV	199	10						4185
HPV18	L1	NVSDYKQT	207	9						4186
HPV18	L1	NVSDYKQTQL	207	11						4187
HPV18	L1	PAENKDPYDKL	496	11						4188
HPV18	L1	PAGGGNKQDI	114	10						4189
HPV18	L1	PAIEHWA	224	8						4190
HPV18	L1	PAIEHWAAGT	224	11						4191
HPV18	L1	PAKRVRVRA	558	9						4192
HPV18	L1	PASPGSCV	344	8						4193
HPV18	L1	PIFLQMAL	57	8						4194
HPV18	L1	PLDICQSI	282	8						4195
HPV18	L1	PLELKNTV	248	8						4196
HPV18	L1	PLELKNTVL	248	9						4197
HPV18	L1	PLGRKFLV	525	8						4198
HPV18	L1	PLGRKFLVQA	525	10						4199
HPV18	L1	PLHSILVYM	28	9						4200
HPV18	L1	PLHSILVYMV	28	10						4201

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L1	PLPLHSIL	26	8						4202
HPV18	L1	PLPLHSILV	26	9						4203
HPV18	L1	PLPLHSILVYM	26	11						4204
HPV18	L1	PLSQGDCPPL	240	10						4205
HPV18	L1	PLYHPRPL	20	8						4206
HPV18	L1	PLYHPRPLPL	20	10						4207
HPV18	L1	PQSLYIKGT	333	9						4208
HPV18	L1	PQSLYIKGTGM	333	11						4209
HPV18	L1	PTIGPRKRS	540	10						4210
HPV18	L1	PTSIFYHA	91	8						4211
HPV18	L1	PTSLVDT	472	8						4212
HPV18	L1	PVPGQYDA	412	8						4213
HPV18	L1	PVPGQYDAT	412	9						4214
HPV18	L1	OAGLRRKPT	533	9						4215
HPV18	L1	OAGLRRKPTI	533	10						4216
HPV18	L1	QLCILGCA	216	8						4217
HPV18	L1	QLCILGCAPA	216	10						4218
HPV18	L1	QLCILGCAPAI	216	11						4219
HPV18	L1	QLCTITLT	439	8						4220
HPV18	L1	QLCTITLTA	439	9						4221
HPV18	L1	QLCTITLTADV	439	11						4222
HPV18	L1	QLFARHFWNRA	315	11						4223
HPV18	L1	QLFNKPYWL	366	9						4224
HPV18	L1	QLFVTVVDT	389	9						4225
HPV18	L1	QLFVTVVDTT	389	10						4226
HPV18	L1	QLPDPNKFGL	137	10						4227
HPV18	L1	QMALWRPSDNT	61	11						4228
HPV18	L1	QMSADPYGDSM	297	11						4229
HPV18	L1	QTQLCILGCA	214	10						4230
HPV18	L1	RAGTMGDT	324	8						4231
HPV18	L1	RAGTMGDTV	324	9						4232
HPV18	L1	RLVWACAGV	158	9						4233
HPV18	L1	RLVWACAGVEI	158	11						4234
HPV18	L1	RVLILHYHL	6	9						4235
HPV18	L1	RVLILHYHLL	6	10						4236
HPV18	L1	RVVNTDDYV	81	9						4237
HPV18	L1	RVVNTDDYVT	81	10						4238
HPV18	L1	SADPYGDSM	299	9						4239
HPV18	L1	SATTSKPA	551	9						4240
HPV18	L1	SAYQYRVFRV	127	10						4241
HPV18	L1	SICKYPDYL	288	9						4242
HPV18	L1	SICKYPDYLOM	288	11						4243
HPV18	L1	SIFYHAGSRL	93	11						4244
HPV18	L1	SILEDWNFGV	459	10						4245
HPV18	L1	SILVYMVHI	31	9						4246
HPV18	L1	SILVYMVHII	31	10						4247

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L1	SILVYVMVHIII	31	11						4248
HPV18	L1	SIVTSDSQL	359	9						4249
HPV18	L1	SIYNPETQRL	150	10						4250
HPV18	L1	SIYNPETQRLV	150	11						4251
HPV18	L1	SLDLDOYPL	518	9						4252
HPV18	L1	SLVDTYRFV	475	9						4253
HPV18	L1	SLYIKGTGM	335	9						4254
HPV18	L1	SLYIKGTGMPA	335	11						4255
HPV18	L1	SMFFCLRRREL	306	11						4256
HPV18	L1	SGDCPPPL	242	8						4257
HPV18	L1	SGDCPPLEL	242	10						4258
HPV18	L1	SQLFNKPYWL	365	10						4259
HPV18	L1	STLQDTKCEV	272	10						4260
HPV18	L1	STNLITICA	400	8						4261
HPV18	L1	STNLITCAST	400	10						4262
HPV18	L1	SVAITCOKDA	485	10						4263
HPV18	L1	SVAITCQKDA	485	11						4264
HPV18	L1	SVARVVNT	78	8						4265
HPV18	L1	SVDYKQTQL	209	9						4266
HPV18	L1	SVDYKQTQLCI	209	11						4267
HPV18	L1	TACKSRPL	234	8						4268
HPV18	L1	TADVMSYI	446	8						4269
HPV18	L1	TADVMSYIHSM	446	11						4270
HPV18	L1	TICASTQSPV	404	10						4271
HPV18	L1	TIGPRKRS	541	9						4272
HPV18	L1	TITLTADV	442	8						4273
HPV18	L1	TITLTADVIM	442	9						4274
HPV18	L1	TLQDTKCEV	273	9						4275
HPV18	L1	TLQDTKCEVPL	273	11						4276
HPV18	L1	TLTADVMSYI	444	10						4277
HPV18	L1	TMGDTVPSL	327	10						4278
HPV18	L1	TQLCILGCA	215	9						4279
HPV18	L1	TQLCILGCAPA	215	11						4280
HPV18	L1	TQRLVWACA	156	9						4281
HPV18	L1	TQRLVWACAGV	156	11						4282
HPV18	L1	TQSPVPGQYDA	409	11						4283
HPV18	L1	TTPSTNLT	397	8						4284
HPV18	L1	TTPSTNLT	397	9						4285
HPV18	L1	TTPSTNLTICA	397	11						4286
HPV18	L1	TTSLVDTYRFV	473	11						4287
HPV18	L1	TTSSKPAKRV	553	10						4288
HPV18	L1	TVGNPYFRV	105	9						4289
HPV18	L1	TVGNPYFRVPA	105	11						4290
HPV18	L1	TVLEDGDM	254	8						4291
HPV18	L1	TVLEDGDMV	254	9						4292
HPV18	L1	TVLEDGDMVDT	254	11						4293

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L1	TVPQSLYI	331	8						4294
HPV18	L1	TVPQSLYIKGT	331	11						4295
HPV18	L1	TVVDITPST	393	9						4296
HPV18	L1	TVVDITPSTNL	393	11						4297
HPV18	L1	TVYLPSPSV	71	9						4298
HPV18	L1	TVYLPSPSVA	71	10						4299
HPV18	L1	VAITCQKDA	486	9						4300
HPV18	L1	VAITCQKDA	486	10						4301
HPV18	L1	VARVNTDDYV	79	11						4302
HPV18	L1	VLEDGDMV	255	8						4303
HPV18	L1	VLEDGDMVDT	255	10						4304
HPV18	L1	VLILHYHL	7	8						4305
HPV18	L1	VLILHYHLL	7	9						4306
HPV18	L1	VLILHYHLLPL	7	11						4307
HPV18	L1	VMSYIHSM	449	8						4308
HPV18	L1	VQAGLRKPT	532	10						4309
HPV18	L1	VQAGLRKPTI	532	11						4310
HPV18	L1	VQLPDNKFGL	136	11						4311
HPV18	L1	VTPSIFYHA	89	10						4312
HPV18	L1	VTVDITPST	392	10						4313
HPV18	L1	VVDITPST	394	8						4314
HPV18	L1	VVDITPSTNL	394	10						4315
HPV18	L1	VVDITPSTNLT	394	11						4316
HPV18	L1	VVNTDDYV	82	8						4317
HPV18	L1	VVNTDDYVT	82	9						4318
HPV18	L1	VVNTDDYVTPT	82	11						4319
HPV18	L1	WACAGVEI	161	8						4320
HPV18	L1	YIHSMNSSI	452	9						4321
HPV18	L1	YIHSMNSSIL	452	10						4322
HPV18	L1	YIILFLRN	45	9						4323
HPV18	L1	YIILFLRNVN	45	11						4324
HPV18	L1	YIKGTGMPA	337	9						4325
HPV18	L1	YLPSPSVA	73	8						4326
HPV18	L1	YLPSPSVARV	73	10						4327
HPV18	L1	YLPSPSVARVV	73	11						4328
HPV18	L1	YQYRVFRV	129	8						4329
HPV18	L1	YQYRVFRVQL	129	10						4330
HPV18	L1	YTRVLILHYHL	4	11						4331
HPV18	L1	YVTPSIFYHA	88	11						4332
HPV18	L2	AARRKRASV	6	9						4333
HPV18	L2	AARRKRASVT	6	10						4334
HPV18	L2	ALTSRRGT	286	8						4335
HPV18	L2	ALTSRRGTV	286	9						4336
HPV18	L2	ATEDNDLFDI	341	10						4337
HPV18	L2	ATMFTRSGT	303	9						4338
HPV18	L2	ATMFTRSGTQI	303	11						4339

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L2	ITSAGTTTPA	130	10						4432
HPV18	L2	ITSAGTTTPAV	130	11						4433
HPV18	L2	ITYDNPAFEPV	249	11						4434
HPV18	L2	IVSPTAPA	416	8						4435
HPV18	L2	IVSPTAPAST	416	10						4436
HPV18	L2	IVTLIEDSSV	103	10						4437
HPV18	L2	IVTLIEDSSVV	103	11						4438
HPV18	L2	KILQWSSL	43	8						4439
HPV18	L2	KILQWSSLGI	43	10						4440
HPV18	L2	KQSGTCPPDV	22	10						4441
HPV18	L2	KQSGTCPPDVV	22	11						4442
HPV18	L2	KTKCKSGT	19	8						4443
HPV18	L2	KVEGTTLA	34	8						4444
HPV18	L2	KVEGTTLADKI	34	11						4445
HPV18	L2	LADKILQWSSL	40	11						4446
HPV18	L2	LIEDSSVV	106	8						4447
HPV18	L2	LIEDSSVVT	106	9						4448
HPV18	L2	LITYDNPA	248	8						4449
HPV18	L2	LQPLVSAT	335	8						4450
HPV18	L2	LQTFASSGT	197	9						4451
HPV18	L2	LQWSSLGI	45	8						4452
HPV18	L2	LQWSSLGIFL	45	10						4453
HPV18	L2	LTDFPRSDV	263	9						4454
HPV18	L2	LTRPSSLI	242	8						4455
HPV18	L2	LTRPSSLIT	242	9						4456
HPV18	L2	LTSRRGTV	287	8						4457
HPV18	L2	LTSSWDVPV	391	9						4458
HPV18	L2	LTSSWDVPVYT	391	11						4459
HPV18	L2	LVSATEDNDL	338	10						4460
HPV18	L2	NTVVDVGGPT	79	9						4461
HPV18	L2	NVFGVTPT	179	8						4462
HPV18	L2	NVFGVTPTSGT	179	11						4463
HPV18	L2	PAFEPVDT	254	8						4464
HPV18	L2	PAFEPVDTT	254	9						4465
HPV18	L2	PAFEPVDITL	254	10						4466
HPV18	L2	PAFEPVDITLT	254	11						4467
HPV18	L2	PAFSDPSI	160	8						4468
HPV18	L2	PAFSDPSII	160	9						4469
HPV18	L2	PAFSDPSIIEV	160	11						4470
HPV18	L2	PALTSRRGT	285	9						4471
HPV18	L2	PALTSRRGTG	285	10						4472
HPV18	L2	PASTQYIGI	422	9						4473
HPV18	L2	PAVLDTIPSST	138	11						4474
HPV18	L2	PAVPVPSRST	357	10						4475
HPV18	L2	PAVPVPSRSTT	357	11						4476
HPV18	L2	PIAPSPEYI	325	9						4477

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L2	PIAPSEYIEL	325	11						4478
HPV18	L2	PISSTPLPT	209	9						4479
HPV18	L2	PISSTPLPTV	209	10						4480
HPV18	L2	PIVSTAPA	415	9						4481
HPV18	L2	PIVSTAPAST	415	11						4482
HPV18	L2	PLGGRSNT	73	8						4483
HPV18	L2	PLGGRSNTV	73	9						4484
HPV18	L2	PLGGRSNTVV	73	10						4485
HPV18	L2	PLPTVRRV	214	8						4486
HPV18	L2	PLPTVRRVA	214	9						4487
HPV18	L2	PLQTFASSGT	196	10						4488
HPV18	L2	PLTSSWDV	390	8						4489
HPV18	L2	PLTSSWDVPV	390	10						4490
HPV18	L2	PLVSATEDNDL	337	11						4491
HPV18	L2	PQTGEVAGNV	171	10						4492
HPV18	L2	PTAPASTQYI	419	10						4493
HPV18	L2	PTDPSIVT	98	8						4494
HPV18	L2	PTDPSIVTL	98	9						4495
HPV18	L2	PTDPSIVTLI	98	10						4496
HPV18	L2	PFTGTSGFDI	120	11						4497
HPV18	L2	PTRPPVVI	86	8						4498
HPV18	L2	PTRPVVI	86	11						4499
HPV18	L2	PTSGTHGYEEI	185	11						4500
HPV18	L2	PTVRRVAGPRL	216	11						4501
HPV18	L2	PVGPTDPSI	95	9						4502
HPV18	L2	PVGPTDPSIV	95	10						4503
HPV18	L2	PVGPTDPSIVT	95	11						4504
HPV18	L2	PVPSRSTT	360	8						4505
HPV18	L2	PVPSRSTTSFA	360	11						4506
HPV18	L2	PVIEPVGPT	90	10						4507
HPV18	L2	PVYTGPD	398	8						4508
HPV18	L2	PVYTGPDIT	398	9						4509
HPV18	L2	PVYTGPDITL	398	10						4510
HPV18	L2	QQVSVANPEFL	232	11						4511
HPV18	L2	QTFASSGT	198	8						4512
HPV18	L2	QTGEVAGNV	172	9						4513
HPV18	L2	QTGEVAGNVFV	172	11						4514
HPV18	L2	QVSVANPEFL	233	10						4515
HPV18	L2	QVSVANPEFLT	233	11						4516
HPV18	L2	RAARKRA	5	8						4517
HPV18	L2	RAARKRASV	5	10						4518
HPV18	L2	RAARKRASVT	5	11						4519
HPV18	L2	RASVTDLYKT	11	10						4520
HPV18	L2	RATMFTRSQT	302	10						4521
HPV18	L2	RAYQVSV	229	8						4522
HPV18	L2	RAYQQVSV	229	9						4523

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L2	RLGQRATM	298	8						4524
HPV18	L2	RLGQRATMFT	298	10						4525
HPV18	L2	RLHRPALT	281	8						4526
HPV18	L2	RLYSRAYQQV	225	10						4527
HPV18	L2	RVAGPRLYSRA	220	11						4528
HPV18	L2	RVHFYHDI	316	8						4529
HPV18	L2	RVHFYHDISPI	316	11						4530
HPV18	L2	RVPYFFADGFV	450	11						4531
HPV18	L2	SAGTTTPA	132	8						4532
HPV18	L2	SAGTTTPAV	132	9						4533
HPV18	L2	SAGTTTPAVL	132	10						4534
HPV18	L2	SASSYSNV	380	8						4535
HPV18	L2	SASSYSNVT	380	9						4536
HPV18	L2	SASSYSNVTV	380	10						4537
HPV18	L2	SATEDNDL	340	8						4538
HPV18	L2	SATEDNDLFDI	340	11						4539
HPV18	L2	SHIEVPQT	166	8						4540
HPV18	L2	SHIEVPQTGEV	166	11						4541
HPV18	L2	SISTTNFT	151	8						4542
HPV18	L2	SISTTNFTNPA	151	11						4543
HPV18	L2	SIVTLIEDSSV	102	11						4544
HPV18	L2	SLGIFLGG	49	9						4545
HPV18	L2	SLGIFLGGIGI	49	11						4546
HPV18	L2	SLITYDNPA	247	9						4547
HPV18	L2	STPLPTVRRV	212	10						4548
HPV18	L2	STPLPTVRRVA	212	11						4549
HPV18	L2	STQYIGIHGT	424	10						4550
HPV18	L2	STSVSIST	147	8						4551
HPV18	L2	STSVSISTT	147	9						4552
HPV18	L2	STTNFTNPA	153	9						4553
HPV18	L2	STTSVWPI	409	8						4554
HPV18	L2	STTSVWPIV	409	9						4555
HPV18	L2	SVANPEFL	235	8						4556
HPV18	L2	SVANPEFLT	235	9						4557
HPV18	L2	SVSISTTNFT	149	10						4558
HPV18	L2	SVTDLYKT	13	8						4559
HPV18	L2	SVVTSGAPRPT	111	11						4560
HPV18	L2	SVWPIVSPT	412	9						4561
HPV18	L2	SVWPIVSPTA	412	10						4562
HPV18	L2	TAPASTQYI	420	9						4563
HPV18	L2	TAPASTQYIGI	420	11						4564
HPV18	L2	TISSASSYSNV	377	11						4565
HPV18	L2	TLIEDSSV	105	8						4566
HPV18	L2	TLIEDSSVV	105	9						4567
HPV18	L2	TLIEDSSVVT	105	10						4568
HPV18	L2	TLPSTTSV	406	8						4569

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L2	TLPSITTSVWPI	406	11						4570
HPV18	L2	TLTFDPRSDV	262	10						4571
HPV18	L2	TMFTRSGT	304	8						4572
HPV18	L2	TMFTRSGTQI	304	10						4573
HPV18	L2	TQYIGHGT	425	9						4574
HPV18	L2	TTLADKIL	38	8						4575
HPV18	L2	TTLTFDPRSDV	261	11						4576
HPV18	L2	TTNFTNPA	154	8						4577
HPV18	L2	TTPAVLDI	136	8						4578
HPV18	L2	TTPAVLDT	136	9						4579
HPV18	L2	TTSVWPIV	410	8						4580
HPV18	L2	TTSVWPIVSPT	410	11						4581
HPV18	L2	TTTPAVLDI	135	9						4582
HPV18	L2	TTTPAVLDIT	135	10						4583
HPV18	L2	TVPLTSSWDV	388	10						4584
HPV18	L2	TVRFSLGQRA	293	11						4585
HPV18	L2	TVRRVAGPRL	217	10						4586
HPV18	L2	TVVDVGPT	80	8						4587
HPV18	L2	VAGNVFVGT	176	9						4588
HPV18	L2	VAGNVFVGTPT	176	11						4589
HPV18	L2	VAGPRLYSRA	221	10						4590
HPV18	L2	VANPEFLT	236	8						4591
HPV18	L2	VIEPVGPT	92	8						4592
HPV18	L2	VLDITPSST	140	9						4593
HPV18	L2	VLDITPSSTSV	140	11						4594
HPV18	L2	VTLIEDSSV	104	9						4595
HPV18	L2	VTLIEDSSVT	104	10						4596
HPV18	L2	VTSGAPRPT	113	11						4597
HPV18	L2	VTSGAPRPTFT	113	9						4598
HPV18	L2	VTPLTSSWDV	387	11						4599
HPV18	L2	VVDVGPTTRPPV	81	11						4600
HPV18	L2	VVIEPVGPT	91	11						4601
HPV18	L2	VVPKVEGT	31	9						4602
HPV18	L2	VVPKVEGT	31	8						4603
HPV18	L2	VVPKVEGTT	31	9						4604
HPV18	L2	VVPKVEGTTL	31	10						4605
HPV18	L2	VVPKVEGTTLA	31	11						4606
HPV18	L2	VVTSGAPRPT	112	10						4607
HPV18	L2	YADMDPA	351	8						4608
HPV18	L2	YADMDPAV	351	9						4609
HPV18	L2	YADMDPAVPV	351	11						4610
HPV18	L2	YIELQPLV	332	8						4611
HPV18	L2	YIELQPLVSA	332	10						4612
HPV18	L2	YIELQPLVSAT	332	11						4613
HPV18	L2	YIGHGTHYYL	427	11						4614
HPV18	L2	YIPLGGRSNT	71	10						4615

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Table VIII
Δ02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV18	L2	YIPLGRSNTV	71	11						4616
HPV18	L2	YLWPLYFYI	436	9						4617
HPV18	L2	YTGPDITL	400	8						4618
HPV18	L2	YTGPDITLPST	400	11						4619
HPV31	E1	AAALYWYRT	296	9						4620
HPV31	E1	AAALYWYRTGM	296	11						4621
HPV31	E1	AAFGVTGT	219	8						4622
HPV31	E1	AAFGVTGTV	219	9						4623
HPV31	E1	AAFGVTGTVA	219	10						4624
HPV31	E1	AAALYWYRT	297	8						4625
HPV31	E1	AAALYWYRTGM	297	10						4626
HPV31	E1	AAMLGKFEL	185	10						4627
HPV31	E1	AICIENNSKT	111	10						4628
HPV31	E1	AICIENNSKTA	111	11						4629
HPV31	E1	ALDGNPVS	519	9						4630
HPV31	E1	ALDGNPVSIDV	519	11						4631
HPV31	E1	ALPHAQEA	68	8						4632
HPV31	E1	ALKLFLKGV	439	9						4633
HPV31	E1	ALMQLKCPPL	533	10						4634
HPV31	E1	ALMQLKCPPLL	533	11						4635
HPV31	E1	ALYWYRTGM	298	9						4636
HPV31	E1	AMLGKFEL	186	9						4637
HPV31	E1	AQALPHAQEA	66	10						4638
HPV31	E1	AQEAEEHA	72	8						4639
HPV31	E1	AQEAEEHAEA	72	10						4640
HPV31	E1	AQEAEEHAEAV	72	11						4641
HPV31	E1	AQEAEEHAEAV	360	10						4642
HPV31	E1	AQLADSDSNA	504	9						4643
HPV31	E1	ATTPCWHYI	22	11						4644
HPV31	E1	AVIDRQTGDN	81	10						4645
HPV31	E1	AVQVLKRKYV	370	10						4646
HPV31	E1	CAFLKNSQA	263	8						4647
HPV31	E1	CAKNRITI	263	11						4648
HPV31	E1	CAKNRITIEKL	113	8						4649
HPV31	E1	CIENNSKT	113	9						4650
HPV31	E1	CIENNSKTA	452	10						4651
HPV31	E1	CILIHGAPNT	279	8						4652
HPV31	E1	CISTNCML	279	9						4653
HPV31	E1	CISTNCMLI	239	9						4654
HPV31	E1	CLYCHLQSL	239	10						4655
HPV31	E1	CLYCHLQSLA	284	9						4656
HPV31	E1	CMLIQPKL	213	8						4657
HPV31	E1	CTDWCVAA	213	11						4658
HPV31	E1	CTDWCVAAFGV	217	8						4659
HPV31	E1	CVAAFGVT	217	10						4660
HPV31	E1	CVAAFGVTGT	217	11						4661

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	CVDYNISPRL	100	10						4662
HPV31	E1	CVSGQNIRT	620	9						4663
HPV31	E1	CVSGQNIRTL	620	10						4664
HPV31	E1	DAKIGMLDDA	495	10						4665
HPV31	E1	DAKIGMLDDAT	495	11						4666
HPV31	E1	DATPCWHYI	503	10						4667
HPV31	E1	DISSCVDYNI	96	10						4668
HPV31	E1	DIVKFLRYQOI	421	11						4669
HPV31	E1	DLSQMVQWA	336	9						4670
HPV31	E1	DMVDFIDNCNV	46	11						4671
HPV31	E1	DTGDMVDFI	42	10						4672
HPV31	E1	DTTFDLQSM	332	9						4673
HPV31	E1	DTTFDLQSMV	332	10						4674
HPV31	E1	DVKHKALM	528	8						4675
HPV31	E1	DVKHKALMQL	528	10						4676
HPV31	E1	DVMDDEI	348	8						4677
HPV31	E1	DVMDDEI	348	9						4678
HPV31	E1	DVYGETPEWI	311	10						4679
HPV31	E1	EAEHAEAE	74	8						4680
HPV31	E1	EAEHAEAEV	74	9						4681
HPV31	E1	EAEHAEAEVQV	74	11						4682
HPV31	E1	EAETAQAL	62	8						4683
HPV31	E1	EAETAQALFHA	62	11						4684
HPV31	E1	EAVIDRQT	21	8						4685
HPV31	E1	EAVQVLKRKYV	80	11						4686
HPV31	E1	EIAYKYAQL	354	9						4687
HPV31	E1	EIAYKYAQLA	354	10						4688
HPV31	E1	ELPDGSGYNT	127	10						4689
HPV31	E1	ELYGVFSFM	193	8						4690
HPV31	E1	ELYGVFSFMEL	193	10						4691
HPV31	E1	ELYGVFSFMELI	193	11						4692
HPV31	E1	ETAQALFHA	64	9						4693
HPV31	E1	ETPEWIERQT	315	10						4694
HPV31	E1	ETPEWIERQTV	315	11						4695
HPV31	E1	ETPTRNIL	168	8						4696
HPV31	E1	ETPTRNILQV	168	10						4697
HPV31	E1	ETPTRNILQVL	168	11						4698
HPV31	E1	ETQQMVMV	139	8						4699
HPV31	E1	EVETOQMV	137	8						4700
HPV31	E1	EVETOQMVQV	137	10						4701
HPV31	E1	FLKGVPKKNCI	443	11						4702
HPV31	E1	FLKSNSQA	372	8						4703
HPV31	E1	FLKSNSQAKI	372	10	0.0011					4704
HPV31	E1	FLKSNSQAKIV	372	11						4705
HPV31	E1	FLQGCISYA	473	10						4706
HPV31	E1	FLRYQQIEFV	425	10						4707

Table VIII **A02 Supermotif Peptides with Binding Information**

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	FLSALKLFL	436	9						4708
HPV31	E1	FQSNKSTCT	206	9						4709
HPV31	E1	FVSFLSAL	433	8						4710
HPV31	E1	FVSFLSALKL	433	10						4711
HPV31	E1	GMLDDATT	499	8						4712
HPV31	E1	GMSLISFL	467	8						4713
HPV31	E1	GMSNISDV	305	8						4714
HPV31	E1	GMVMLMLV	252	8						4715
HPV31	E1	GQWIKSRCDKV	403	11						4716
HPV31	E1	GTGCGWFVV	11	10	0.0006					4717
HPV31	E1	GTHSERENET	160	10						4718
HPV31	E1	GTMCRHYKRA	386	10						4719
HPV31	E1	GTVAEGFKT	225	9						4720
HPV31	E1	GTVAEGFKTL	225	10						4721
HPV31	E1	GTVAEGFKTLL	225	11						4722
HPV31	E1	GVPKKNCI	446	8						4723
HPV31	E1	GVPKKNCIL	446	9						4724
HPV31	E1	GVPKKNCILI	446	10						4725
HPV31	E1	GVSEFMEI	196	8						4726
HPV31	E1	HAEAVQVL	78	8						4727
HPV31	E1	HAQEAEEHA	71	9						4728
HPV31	E1	HAQEAEEHAEA	71	11						4729
HPV31	E1	HLQSLACSWGMM	243	11						4730
HPV31	E1	IAYKYAQL	355	8						4731
HPV31	E1	IAYKYAQLA	355	9						4732
HPV31	E1	ILIHGAPNT	453	9						4733
HPV31	E1	IOPPKLRST	287	9						4734
HPV31	E1	IOPPKLRSTA	287	10						4735
HPV31	E1	IOPPKLRSTAA	287	11						4736
HPV31	E1	ITIEKLLEKL	268	10						4737
HPV31	E1	ITIEKLLEKLL	268	11						4738
HPV31	E1	IVKDCGTM	381	8						4739
HPV31	E1	IVKFLRYQQI	422	10						4740
HPV31	E1	KAAMLGKFKEL	184	11						4741
HPV31	E1	KAICIENNSKT	110	11						4742
HPV31	E1	KALMLQKCPPL	532	11						4743
HPV31	E1	KIGMLDDA	497	8						4744
HPV31	E1	KIGMLDDAT	497	9						4745
HPV31	E1	KIGMLDDATT	497	10						4746
HPV31	E1	KIVKDCGT	380	8						4747
HPV31	E1	KIVKDCGTM	380	9						4748
HPV31	E1	KLLCISTNCM	276	10						4749
HPV31	E1	KLLCISTNCML	276	11						4750
HPV31	E1	KLLEKLICI	272	9						4751
HPV31	E1	KLLEKLICIST	272	11						4752
HPV31	E1	KLRSTAAA	291	8						4753

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	KLRSTAAAL	291	9	0.0003					4754
HPV31	E1	KTAKRRUFEL	119	10						4755
HPV31	E1	KTLLQPYCL	232	9						4756
HPV31	E1	KTSNGKAA	179	8						4757
HPV31	E1	KTSNGKAAM	179	9						4758
HPV31	E1	KTSNGKAAML	179	10						4759
HPV31	E1	KVSDEGDWRDI	412	11						4760
HPV31	E1	LACSWGGMV	247	8						4761
HPV31	E1	LACSWGGMVM	247	9						4762
HPV31	E1	LACSWGGMVML	247	10						4763
HPV31	E1	LACSWGGMVMLM	247	11						4764
HPV31	E1	LADAKIGM	493	8						4765
HPV31	E1	LADAKIGML	493	9						4766
HPV31	E1	LADSDSNA	362	8						4767
HPV31	E1	LADSDSNACA	362	10						4768
HPV31	E1	LIHGAPNT	454	8						4769
HPV31	E1	LIQPPKLRST	286	10						4770
HPV31	E1	LIQPPKLRSTA	286	11						4771
HPV31	E1	LIRPQSNKST	202	11						4772
HPV31	E1	LISFLQGGI	470	9						4773
HPV31	E1	LISFLQGCII	470	10						4774
HPV31	E1	LITSNINA	543	8						4775
HPV31	E1	LLCISTNCM	277	9						4776
HPV31	E1	LLCISTNCML	277	10						4777
HPV31	E1	LLCISTNCMLI	277	11						4778
HPV31	E1	LLEKLLCI	273	8						4779
HPV31	E1	LLEKLLCIST	273	10						4780
HPV31	E1	LLITSNINA	273	9	0.0022					4781
HPV31	E1	LLQPYCLYCHL	542	11						4782
HPV31	E1	LMLVRFKCA	234	9						4783
HPV31	E1	LMQLKCPPL	256	9						4784
HPV31	E1	LMQLKCPPL	534	9						4785
HPV31	E1	LMQLKCPPL	534	10						4786
HPV31	E1	LMQLKCPPLI	534	11						4787
HPV31	E1	LQGCISYA	474	9						4788
HPV31	E1	LQHSFNDT	326	8						4789
HPV31	E1	LQHSFNDTT	326	9						4790
HPV31	E1	LQPLADAKI	490	9						4791
HPV31	E1	LQPLADAKIGM	490	11						4792
HPV31	E1	LQPYCLYCHL	235	10						4793
HPV31	E1	LQSLACSWGGM	244	10						4794
HPV31	E1	LQSLACSWGGMV	244	11						4795
HPV31	E1	LQVLKTSNGKA	175	11						4796
HPV31	E1	LVRFKCAKNRI	258	11						4797
HPV31	E1	MLGKFKEI	187	8						4798
HPV31	E1	MLGKFKELYGV	187	11						4799
HPV31	E1	MLIQPKL	285	8						

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	MLIQPKLRST	285	11						4800
HPV31	E1	MLMLVRFKCA	255	10						4801
HPV31	E1	MLVRFKCA	257	8						4802
HPV31	E1	MLKCPPL	535	8						4803
HPV31	E1	MLKCPPL	535	9						4804
HPV31	E1	MLKCPPLLI	535	10						4805
HPV31	E1	MLKCPPLIT	535	11						4806
HPV31	E1	MVDFDNCNV	47	10						4807
HPV31	E1	MVQVEEQQT	143	9						4808
HPV31	E1	MVQVEEQQT	143	10						4809
HPV31	E1	MVQVEEQQTTL	143	11						4810
HPV31	E1	MVQWAYDNDV	340	10						4811
HPV31	E1	MVQWAYDNDVM	340	11						4812
HPV31	E1	NAGKDDRWPYL	549	11						4813
HPV31	E1	NALDGNPV	518	8						4814
HPV31	E1	NALDGNPVS	518	10						4815
HPV31	E1	NILQVLKT	173	8						4816
HPV31	E1	NISDVYGET	308	9						4817
HPV31	E1	NISPLKA	104	8						4818
HPV31	E1	NISPLKAI	104	9						4819
HPV31	E1	NISPLKAI	104	11						4820
HPV31	E1	NQAEATA	59	8						4821
HPV31	E1	NQAEATAQA	59	10						4822
HPV31	E1	NQAEATAQAL	59	11						4823
HPV31	E1	NTEVETQQM	135	9						4824
HPV31	E1	NTEVETQQMV	135	10						4825
HPV31	E1	NTGKSYFGM	460	9						4826
HPV31	E1	NTGKSYFGMSL	460	11						4827
HPV31	E1	NVYNNQAEA	55	9						4828
HPV31	E1	NVYNNQAEAE	55	11						4829
HPV31	E1	PAGTDGEGT	4	9						4830
HPV31	E1	PLADAKIGM	492	9						4831
HPV31	E1	PLADAKIGML	492	10						4832
HPV31	E1	PLITSNI	541	8						4833
HPV31	E1	PLITSNINA	541	10						4834
HPV31	E1	PLSDISSCV	93	9						4835
HPV31	E1	PTRNILQV	170	8						4836
HPV31	E1	PTRNILQVL	170	9						4837
HPV31	E1	PTRNILQVLKT	170	11						4838
HPV31	E1	PVSIDVKHKA	524	10						4839
HPV31	E1	PVSIDVKHKAAL	524	11						4840
HPV31	E1	QAEATAQA	60	9						4841
HPV31	E1	QAEATAQAL	60	10						4842
HPV31	E1	QAKIVKDCGT	378	10						4843
HPV31	E1	QAKIVKDCGTM	378	11						4844
HPV31	E1	QALFHAQEA	67	9						4845

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	QIEFVSFL	430	8						4846
HPV31	E1	QIEFVSFLSA	430	10						4847
HPV31	E1	QIEFVSFLSAL	430	11						4848
HPV31	E1	QLADSDSNA	361	9						4849
HPV31	E1	QLADSDSNACA	361	11						4850
HPV31	E1	QLKCPPLL	536	8						4851
HPV31	E1	QLKCPPLLI	536	9	0.0049					4852
HPV31	E1	QLKCPPLLIIT	536	10						4853
HPV31	E1	QMSMGQWI	399	8						4854
HPV31	E1	QMVQVEEQQT	142	10						4855
HPV31	E1	QMVQVEEQQT	142	11						4856
HPV31	E1	QMVQWAYDNDV	339	11						4857
HPV31	E1	QQIEFVSFL	429	9						4858
HPV31	E1	QQIEFVSFLSA	429	11						4859
HPV31	E1	QQMVQVEEQQT	141	11						4860
HPV31	E1	QTVLQHSFNDT	323	11						4861
HPV31	E1	QVEEQQT	145	8						4862
HPV31	E1	QVEEQQTTL	145	9						4863
HPV31	E1	QVLKRYV	83	8						4864
HPV31	E1	QVLKTSNGKA	176	10						4865
HPV31	E1	QVLKTSNGKAA	176	11						4866
HPV31	E1	RAEKRQMSM	394	9						4867
HPV31	E1	RITIEKLL	267	8						4868
HPV31	E1	RITIEKLEKL	267	11						4869
HPV31	E1	RQMSMGQWI	398	9						4870
HPV31	E1	RTGMSNISDV	303	10						4871
HPV31	E1	RTWCRLNL	595	8						4872
HPV31	E1	SALKFLKGV	438	10						4873
HPV31	E1	SIDVKHKA	526	8						4874
HPV31	E1	SIDVKHKAL	526	9						4875
HPV31	E1	SIDVKHKALM	526	10						4876
HPV31	E1	SLACSWGGM	246	8						4877
HPV31	E1	SLACSWGGMV	246	9	0.0820					4878
HPV31	E1	SLACSWGGMV	246	10						4879
HPV31	E1	SLACSWGGMVML	246	11						4880
HPV31	E1	SLISFLQGC	469	10						4881
HPV31	E1	SLISFLQGCII	469	11						4882
HPV31	E1	SQAKIVKDCGT	377	11						4883
HPV31	E1	STAAALYWYRT	294	11						4884
HPV31	E1	STCTDWCV	211	8						4885
HPV31	E1	STCTDWCVA	211	9						4886
HPV31	E1	STCTDWCVA	211	10						4887
HPV31	E1	STFKCVSGQNI	616	11						4888
HPV31	E1	TAAALYWYRT	295	10						4889
HPV31	E1	TAKRRLFEL	120	9						4890
HPV31	E1	TAQALFHA	65	8						4891

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	TAQALFHAQEA	65	11						4892
HPV31	E1	TIEKLLEKL	269	9						4893
HPV31	E1	TIEKLLEKLL	269	10						4894
HPV31	E1	TLLQPYCL	233	8						4895
HPV31	E1	TLSCNGSDGT	152	10						4896
HPV31	E1	TMCRRHYKRA	387	9	0.0003					4897
HPV31	E1	TTFDLSQM	333	8						4898
HPV31	E1	TTFDLSQMV	333	9						4899
HPV31	E1	TTLSCNGSDGT	151	11						4900
HPV31	E1	TTPCWHYI	505	8						4901
HPV31	E1	TVAEGFKT	226	8						4902
HPV31	E1	TVAEGFKTL	226	9						4903
HPV31	E1	TVAEGFKTL	226	10						4904
HPV31	E1	TVLQHSFNDT	324	10						4905
HPV31	E1	TVLQHSFNDTT	324	11						4906
HPV31	E1	VAAFVGTGT	218	9						4907
HPV31	E1	VAAFVGTGT	218	10						4908
HPV31	E1	VAAFVGTGTVA	218	11						4909
HPV31	E1	VAEGFKTL	227	8						4910
HPV31	E1	VAEGFKTL	227	9						4911
HPV31	E1	VIDRQTGDN	23	10						4912
HPV31	E1	VLKRYVGSPL	84	11						4913
HPV31	E1	VLKTSNGKA	177	9						4914
HPV31	E1	VLKTSNGKAA	177	10						4915
HPV31	E1	VLKTSNGKAAM	177	11						4916
HPV31	E1	VLQHSFNDT	325	9						4917
HPV31	E1	VLQHSFNDT	325	10						4918
HPV31	E1	VMDSEIA	349	8						4919
HPV31	E1	VMLMLVRFKCA	254	11						4920
HPV31	E1	VQVEEQQT	144	8						4921
HPV31	E1	VQVEEQQT	144	9						4922
HPV31	E1	VQVEEQQTTL	144	10						4923
HPV31	E1	VQVLKRYV	82	9						4924
HPV31	E1	VQWAYDNDV	341	9						4925
HPV31	E1	VQWAYDNDVM	341	10						4926
HPV31	E1	VTGTVAEGFKT	223	11						4927
HPV31	E1	WAYDNDVM	343	8						4928
HPV31	E1	WIERQTVL	319	8						4929
HPV31	E1	WIKSRCDKV	405	9						4930
HPV31	E1	WLQPLADA	489	8						4931
HPV31	E1	WLQPLADAKI	489	10						4932
HPV31	E1	YANSKSHFWL	481	10						4933
HPV31	E1	YAQLADSDSNA	359	11						4934
HPV31	E1	YIDNYLRNA	511	9						4935
HPV31	E1	YIDNYLRNAL	511	10						4936
HPV31	E1	YLHSRLVV	558	8						4937

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E1	YLHRLVVFT	558	10						4938
HPV31	E1	YLRNALDGNPV	515	11						4939
HPV31	E1	YQIEFVSFL	428	10						4940
HPV31	E1	YVEAVIDRQT	19	10						4941
HPV31	E1	YVGSPLSDI	89	9						4942
HPV31	E2	AAACTNQI	277	8						4943
HPV31	E2	AAACTNQTRA	277	10						4944
HPV31	E2	AAACTNQTRAV	277	11						4945
HPV31	E2	AACTNQTRA	278	9						4946
HPV31	E2	AACTNQTRAV	278	10						4947
HPV31	E2	AIELQMML	72	8						4948
HPV31	E2	AIELQMMLLET	72	10						4949
HPV31	E2	AIELQMMLLET	72	11						4950
HPV31	E2	AIVTLTYI	338	8						4951
HPV31	E2	AIVTLTYIST	338	10						4952
HPV31	E2	ALGTSEGV	229	8						4953
HPV31	E2	ALGTSEGVRR	229	11						4954
HPV31	E2	ALQAIELQM	69	9						4955
HPV31	E2	ALQAIELQMM	69	10						4956
HPV31	E2	ALQAIELQMML	69	11						4957
HPV31	E2	ALSVSKAKA	61	9						4958
HPV31	E2	ALSVSKAKAL	61	10						4959
HPV31	E2	ATPIHL	291	8						4960
HPV31	E2	ATSTKRPRT	239	10						4961
HPV31	E2	AVSCPATT	286	8						4962
HPV31	E2	AVSCPATTPI	286	10						4963
HPV31	E2	AVSCPATTPII	286	11						4964
HPV31	E2	CALGTSEGV	228	9						4965
HPV31	E2	CIDGQCTV	140	8						4966
HPV31	E2	CIDGQCTVV	140	9						4967
HPV31	E2	CLKKHGYT	109	8						4968
HPV31	E2	CLKKHGYTV	109	9						4969
HPV31	E2	CLKKHGYTVEV	109	11						4970
HPV31	E2	CTDGKHKNA	330	9						4971
HPV31	E2	CTDGKHKNAI	330	10						4972
HPV31	E2	CTDGKHKNAIV	330	11						4973
HPV31	E2	CTNQTRAV	280	8						4974
HPV31	E2	CTVVEGVQV	145	8						4975
HPV31	E2	CVLMYKAREM	40	10						4976
HPV31	E2	DANILKCL	301	8						4977
HPV31	E2	DVHNTMHT	124	9						4978
HPV31	E2	EISFAGIV	204	8						4979
HPV31	E2	EISFAGIVT	204	9						4980
HPV31	E2	EISFAGIVTKL	204	11						4981
HPV31	E2	ELQMMLET	74	8						4982
HPV31	E2	ELQMMLET	74	9						4983

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E2	ELYLTAPT	100	8						4984
HPV31	E2	ELYLTAPTGL	100	11						4985
HPV31	E2	EMGIHSNHQV	48	11						4986
HPV31	E2	BQVSTWHWT	320	10						4987
HPV31	E2	ETLSQRLNV	2	9						4988
HPV31	E2	EVHAGGQV	185	8						4989
HPV31	E2	EVHAGGQVI	185	9						4990
HPV31	E2	EVHAGGQVIV	185	10						4991
HPV31	E2	EVQFDGDV	118	8						4992
HPV31	E2	EVQFDGDVHNT	118	11						4993
HPV31	E2	FAGIVTKL	207	8						4994
HPV31	E2	FAGIVTKLPT	207	10						4995
HPV31	E2	FAGIVTKLPTA	207	11						4996
HPV31	E2	FYLCIDGQCT	136	11						4997
HPV31	E2	FLNTVKIPNT	353	10						4998
HPV31	E2	FLNTVKIPNTV	353	11						4999
HPV31	E2	FTBEAKKYGT	171	10						5000
HPV31	E2	FVNFTTEA	168	8						5001
HPV31	E2	GIHSINHOV	50	9						5002
HPV31	E2	GIHSINHOVV	50	10						5003
HPV31	E2	GIVTKLPT	209	8						5004
HPV31	E2	GIVTKLPTA	209	9						5005
HPV31	E2	GIYYVHEGHI	156	10						5006
HPV31	E2	GIYYVHEGHIT	156	11						5007
HPV31	E2	GQCTVVEGQV	143	10						5008
HPV31	E2	GQVIVFPEV	190	10						5009
HPV31	E2	QVNCCKGI	150	8						5010
HPV31	E2	QVNCCKGIYVV	150	11						5011
HPV31	E2	GTGKKWEV	179	8						5012
HPV31	E2	GTGKKWEVHA	179	10						5013
HPV31	E2	GTSEGVRRRA	231	9						5014
HPV31	E2	GTSEGVRRRAT	231	10						5015
HPV31	E2	GTSEGVRRATT	231	11						5016
HPV31	E2	GVISAAACT	273	9						5017
HPV31	E2	GVRRTATTST	235	9						5018
HPV31	E2	HAGGQVIV	187	8						5019
HPV31	E2	HIDYWKHI	29	8						5020
HPV31	E2	HIDYWKHRL	29	10						5021
HPV31	E2	HIRLECVL	35	8						5022
HPV31	E2	HIRLECVLM	35	9						5023
HPV31	E2	HITYFVNFT	164	9						5024
HPV31	E2	HLKGDANI	297	8						5025
HPV31	E2	HLKGDANIL	297	9						5026
HPV31	E2	HQVVPALSV	56	9						5027
HPV31	E2	IHLKGDA	295	8						5028
HPV31	E2	IHLKGDANI	295	10						5029

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E2	IIHLKGDANIL	295	11						5030
HPV31	E2	ILKCLRRL	304	9						5031
HPV31	E2	ITYFVNFT	165	8						5032
HPV31	E2	ITYFVNFTTEA	165	11						5033
HPV31	E2	IVTKLPTA	210	8						5034
HPV31	E2	IVTKLPTANNT	210	11						5035
HPV31	E2	IVTLTYIST	339	9						5036
HPV31	E2	KAKALQAI	66	8						5037
HPV31	E2	KAKALQAIEL	66	10						5038
HPV31	E2	KALQAIEL	68	8						5039
HPV31	E2	KALQAIELQM	68	10						5040
HPV31	E2	KALQAIELQMM	68	11						5041
HPV31	E2	KAREMGHISI	45	10						5042
HPV31	E2	KIPNTVSV	358	8						5043
HPV31	E2	KIPNTVSVST	358	10						5044
HPV31	E2	KLLRGDSV	260	8						5045
HPV31	E2	KLLRGDSVDSV	260	11						5046
HPV31	E2	KLPTANNT	213	8						5047
HPV31	E2	KLPTANNTT	213	9						5048
HPV31	E2	KLPTANNTTT	213	10						5049
HPV31	E2	KQLYEQVSST	316	10						5050
HPV31	E2	KTCALGTSEGV	226	11						5051
HPV31	E2	LLRGDSVDSV	261	10						5052
HPV31	E2	LMYKAREM	42	8						5053
HPV31	E2	LMYKAREMGI	42	10						5054
HPV31	E2	LQAIELQM	70	8						5055
HPV31	E2	LQAIELQMM	70	9						5056
HPV31	E2	LQAIELQMML	70	10						5057
HPV31	E2	LQMMLETL	75	8						5058
HPV31	E2	LQMMLETLNNT	75	11						5059
HPV31	E2	LTAPTGL	103	8						5060
HPV31	E2	MLETNLT	78	8						5061
HPV31	E2	MMELETLNNT	77	9						5062
HPV31	E2	MQQTSLEL	94	8						5063
HPV31	E2	MQQTSLELYL	94	10						5064
HPV31	E2	MQQTSLELYLT	94	11						5065
HPV31	E2	NAIVTLTYI	337	9						5066
HPV31	E2	NAIVTLTYIST	337	11						5067
HPV31	E2	NILKCLRRL	303	10						5068
HPV31	E2	NOTRAVSCPA	282	10						5069
HPV31	E2	NOTRAVSCPAT	282	11						5070
HPV31	E2	NTEYKNEWT	84	10						5071
HPV31	E2	NTEYKNEWDWTM	84	11						5072
HPV31	E2	NTHHPNKL	254	8						5073
HPV31	E2	NTHHPNKL	254	9						5074
HPV31	E2	NTHHPNKL	254	9						5075
HPV31	E2	NTHHPNKL	254	9						5075

61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E2	NTTTSNSKT	219	9						5076
HPV31	E2	NTTTSNSKTCA	219	11						5077
HPV31	E2	NTVKIPNT	355	8						5078
HPV31	E2	NTVKIPNTV	355	9						5079
HPV31	E2	NTVKIPNTVSV	355	11						5080
HPV31	E2	NTVSVSTGYM	361	10						5081
HPV31	E2	NTVSVSTGYMT	361	11						5082
HPV31	E2	NVCQDKIL	9	8						5083
HPV31	E2	PALSVSKA	60	8						5084
HPV31	E2	PALSVSKAKA	60	10						5085
HPV31	E2	PALSVSKAKAL	60	11						5086
HPV31	E2	PATPIIHL	290	9						5087
HPV31	E2	PIHLKGDA	294	9						5088
HPV31	E2	PIHLKGDANI	294	11						5089
HPV31	E2	PTANNNTT	215	8						5090
HPV31	E2	PTGCLKKHGYT	106	11						5091
HPV31	E2	QAIELQMM	71	8						5092
HPV31	E2	QAIELQMML	71	9						5093
HPV31	E2	QAIELQMMLLET	71	11						5094
HPV31	E2	QLYEQVSST	317	9						5095
HPV31	E2	QMMLETLNNT	76	10						5096
HPV31	E2	QQTSLLELYL	95	9						5097
HPV31	E2	QQTSLLELYLT	95	10						5098
HPV31	E2	QQTSLLELYLTA	95	11						5099
HPV31	E2	QTRAVSCPA	283	9						5100
HPV31	E2	QTRAVSCPAT	283	10						5101
HPV31	E2	QTRAVSCPATT	283	11						5102
HPV31	E2	QTSLELYL	96	8						5103
HPV31	E2	QTSLELYLT	96	9						5104
HPV31	E2	QTSLELYLTA	96	10						5105
HPV31	E2	QVVPFESV	191	9						5106
HPV31	E2	QVNCKGIYV	151	10						5107
HPV31	E2	QVSSSTWHWT	321	9						5108
HPV31	E2	QVSSSTWHWTCT	321	11						5109
HPV31	E2	QVVPALSV	57	8						5110
HPV31	E2	QVVPALSVSKA	57	11						5111
HPV31	E2	RATTSTKRPRIT	238	11						5112
HPV31	E2	RAVSCPAT	285	8						5113
HPV31	E2	RAVSCPATT	285	9						5114
HPV31	E2	RAVSCPATTPI	285	11						5115
HPV31	E2	RLECVMYKA	37	10						5116
HPV31	E2	RLNVCQDKI	7	9						5117
HPV31	E2	RLNVCQDKIL	7	10						5118
HPV31	E2	RLSKYKQL	311	8						5119
HPV31	E2	RTEPEHRNT	247	9						5120
HPV31	E2	SAAACTNQT	276	9						5121

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV31	E2	SAAACTNQTRA	276	11						5122
HPV31	E2	SINHQVPPA	53	9						5123
HPV31	E2	SINHQVVPAL	53	10						5124
HPV31	E2	SLELYLTA	98	8						5125
HPV31	E2	SLELYLTAPT	98	10						5126
HPV31	E2	SQRDDFLNT	348	9						5127
HPV31	E2	SQRDDFLNTV	348	10						5128
HPV31	E2	SQRLNVQCDKI	5	11						5129
HPV31	E2	STSQRDDFL	346	9						5130
HPV31	E2	STSQRDDFLNT	346	11						5131
HPV31	E2	STWHWTCT	324	8						5132
HPV31	E2	SVDSVNCGV	266	9						5133
HPV31	E2	SVDSVNCGVI	266	10						5134
HPV31	E2	SFSSDEI	198	8						5135
HPV31	E2	SFSSDEISFA	198	11						5136
HPV31	E2	SVNCGVISA	269	9						5137
HPV31	E2	SVNCGVISAA	269	10						5138
HPV31	E2	SVNCGVISAAA	269	11						5139
HPV31	E2	SVSKAKAL	63	8						5140
HPV31	E2	SVSKAKALQA	63	10						5141
HPV31	E2	SVSKAKALQAI	63	11						5142
HPV31	E2	SVSTGYMT	364	8						5143
HPV31	E2	SVSTGYMTI	364	9						5144
HPV31	E2	TLSQLNV	3	8						5145
HPV31	E2	TMHYTNWKFI	128	10						5146
HPV31	E2	TMQOTSLEL	93	9						5147
HPV31	E2	TMQOTSLELYL	93	11						5148
HPV31	E2	TPPIHLKGDA	292	11						5149
HPV31	E2	TTNSKKTCA	221	9						5150
HPV31	E2	TTNSSKTCAL	221	10						5151
HPV31	E2	TTSTKRPR	240	9						5152
HPV31	E2	TTTNSKT	220	8						5153
HPV31	E2	TTTNSKKTCA	220	10						5154
HPV31	E2	TTTNSSKTCAL	220	11						5155
HPV31	E2	TVEVQFDGDV	116	10						5156
HPV31	E2	TVKIPNTV	356	8						5157
HPV31	E2	TVKIPNTVS	356	10						5158
HPV31	E2	TVSVSTGYM	362	9						5159
HPV31	E2	TVSVSTGYMT	362	10						5160
HPV31	E2	TVSVSTGYMTI	362	11						5161
HPV31	E2	VISAAACT	274	8						5162
HPV31	E2	VISAAACTNQT	274	11						5163
HPV31	E2	VIVFPESV	192	8						5164
HPV31	E2	VLMYKAREM	41	9						5165
HPV31	E2	VLMYKAREMGI	41	11						5166
HPV31	E2	VQFDGDVHNT	119	10						5167

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E2	VQFDGDVHNTM	119	11						5168
HPV31	E2	VTKLPTANNT	211	10						5169
HPV31	E2	VTKLPTANNT	211	11						5170
HPV31	E2	VTLYIST	340	8						5171
HPV31	E2	VVEGOVNCKGI	147	11						5172
HPV31	E2	VVPALSVSKA	58	10						5173
HPV31	E2	WTCTDGKHKNA	328	11						5174
HPV31	E2	WTMQQTSL	92	8						5175
HPV31	E2	WTMQQTSL	92	10						5176
HPV31	E2	YISTSQRDFFL	344	11						5177
HPV31	E2	YLCIDGQCT	138	9						5178
HPV31	E2	YLCIDGQCTV	138	10						5179
HPV31	E2	YLCIDGQCTVV	138	11						5180
HPV31	E2	YLTAPTGL	102	9						5181
HPV31	E2	YTNWKFIYL	131	9						5182
HPV31	E2	YTNWKFIYLCI	131	11						5183
HPV31	E2	YTVVEQFDGDV	115	11						5184
HPV31	E2	YVHEGHIT	159	8						5185
HPV31	E2	YVHEGHITYFV	159	11						5186
HPV31	E5	ATLLLLV	40	8						5187
HPV31	E5	ATLLLLVI	40	9						5188
HPV31	E5	ATLLLLVIL	40	10						5189
HPV31	E5	ATSPRCFCI	53	10						5190
HPV31	E5	CIYVVFYI	61	9						5191
HPV31	E5	CIYVVFYIPL	61	11						5192
HPV31	E5	CLVIRPLV	26	8						5193
HPV31	E5	CLVIRPLV	26	9						5194
HPV31	E5	CLVIRPLVLSV	26	11						5195
HPV31	E5	CVLLFVCL	20	8						5196
HPV31	E5	CVLLFVCLV	20	9						5197
HPV31	E5	CVLLFVCLVI	20	10						5198
HPV31	E5	ELNISTVSI	3	9						5199
HPV31	E5	ELNISTVSIV	3	10						5200
HPV31	E5	ELNISTVSIVL	3	11						5201
HPV31	E5	FIYIPLFV	66	8						5202
HPV31	E5	FIYIPLFVI	66	9						5203
HPV31	E5	FIYIPLFVIHT	66	11						5204
HPV31	E5	FLLCFVCL	15	8						5205
HPV31	E5	FLLCFVCLL	15	9						5206
HPV31	E5	FLLCFVCLLVFV	15	11						5207
HPV31	E5	FVCLVIRPL	24	9						5208
HPV31	E5	FVCLVIRPLV	24	10						5209
HPV31	E5	FVCLVIRPLVL	24	11						5210
HPV31	E5	FVIHTHASFL	72	10						5211
HPV31	E5	IATSPRCFCI	52	11						5212
HPV31	E5	ILWVIATSP	48	10						5213

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E5	IVILWVIA	46	8						5214
HPV31	E5	IVILWVIAT	46	9						5215
HPV31	E5	IVLCFLCFCV	11	11						5216
HPV31	E5	LIVILWVI	45	8						5217
HPV31	E5	LIVILWVIA	45	9						5218
HPV31	E5	LIVILWVIAT	45	10						5219
HPV31	E5	LLCFCVLL	16	8						5220
HPV31	E5	LLCFCVLLFV	16	10						5221
HPV31	E5	LLFVCLVI	22	8						5222
HPV31	E5	LLFVCLVIRPL	22	11						5223
HPV31	E5	LLIVILWV	44	8						5224
HPV31	E5	LLIVILWVI	44	9						5225
HPV31	E5	LLIVILWVIA	44	10						5226
HPV31	E5	LLIVILWVIAT	44	11						5227
HPV31	E5	LLIVILWV	43	9						5228
HPV31	E5	LLIVILWVI	43	10						5229
HPV31	E5	LLIVILWVIA	43	11						5230
HPV31	E5	LLLLVIL	42	8						5231
HPV31	E5	LLLLVILWV	42	10						5232
HPV31	E5	LLLLVILWVI	42	11						5233
HPV31	E5	LVIRPLVL	27	8						5234
HPV31	E5	LVIRPLVLSV	27	10						5235
HPV31	E5	LVLSVSVYA	32	9						5236
HPV31	E5	LVLSVSVYAT	32	10						5237
HPV31	E5	LVLSVSVYATL	32	11						5238
HPV31	E5	MIELNIST	1	8						5239
HPV31	E5	MIELNISTV	1	9						5240
HPV31	E5	MIELNISTVSI	1	11						5241
HPV31	E5	NISTVSIV	5	8						5242
HPV31	E5	NISTVSIVL	5	9						5243
HPV31	E5	PLFVIHTHA	70	9						5244
HPV31	E5	PLRCFCIYV	56	9						5245
HPV31	E5	PLRCFCIYVV	56	10						5246
HPV31	E5	PLVLSVSV	31	8						5247
HPV31	E5	PLVLSVSVYA	31	10						5248
HPV31	E5	PLVLSVSVYAT	31	11						5249
HPV31	E5	SIVLCFLL	10	8						5250
HPV31	E5	STVSIVLCFL	7	10						5251
HPV31	E5	STVSIVLCFLL	7	11						5252
HPV31	E5	SVSVYATL	35	8						5253
HPV31	E5	SVSVYATLL	35	9						5254
HPV31	E5	SVSVYATLLL	35	10						5255
HPV31	E5	SVSVYATLLLL	35	11						5256
HPV31	E5	SVYATLLL	37	8						5257
HPV31	E5	SVYATLLLL	37	9						5258
HPV31	E5	SVYATLLLLLI	37	10						5259

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E5	SVYATLLLLIV	37	11						5260
HPV31	E5	TLLLLVI	41	8						5261
HPV31	E5	TLLLLVIL	41	9						5262
HPV31	E5	TLLLLVILWV	41	11						5263
HPV31	E5	TVSIVLCFL	8	9						5264
HPV31	E5	TVSIVLCFLL	8	10						5265
HPV31	E5	VIHTHASFL	73	9						5266
HPV31	E5	VILWVIAT	47	8						5267
HPV31	E5	VILWVIATSP	47	11						5268
HPV31	E5	VIRPLVLSV	28	9						5269
HPV31	E5	VIRPLVLSVSV	28	11						5270
HPV31	E5	VLCFLLCFCV	12	10						5271
HPV31	E5	VLCFLLCFCVL	12	11						5272
HPV31	E5	VLLFVCLV	21	8						5273
HPV31	E5	VLLFVCLVI	21	9						5274
HPV31	E5	VLSVSVYA	33	8						5275
HPV31	E5	VLSVSVYAT	33	9						5276
HPV31	E5	VLSVSVYATL	33	10						5277
HPV31	E5	VLSVSVYATLL	33	11						5278
HPV31	E5	VVFYIPL	64	8						5279
HPV31	E5	VVFYIPLFV	64	10						5280
HPV31	E5	VVFYIPLFVI	64	11						5281
HPV31	E5	WVIATSP	50	8						5282
HPV31	E5	YATLLLI	39	8						5283
HPV31	E5	YATLLLLIV	39	9						5284
HPV31	E5	YATLLLLVI	39	10						5285
HPV31	E5	YATLLLLVIL	39	11						5286
HPV31	E5	YIPLFVIHT	68	9						5287
HPV31	E5	YIPLFVIHTA	68	11						5288
HPV31	E5	YVVFYIPL	63	9						5289
HPV31	E5	YVVFYIPLFV	63	11						5290
HPV31	E6	ALEIPYDEL	18	9						5291
HPV31	E6	ALEIPYDELRL	18	11						5292
HPV31	E6	CIACWRRPRT	136	10						5293
HPV31	E6	CITCQRPL	103	8						5294
HPV31	E6	CLRFYSKV	66	8						5295
HPV31	E6	CTKCLRFYSKV	63	11						5296
HPV31	E6	CVYCKGQL	30	8						5297
HPV31	E6	CVYCKGQLT	30	9						5298
HPV31	E6	CVYCKGQLTET	30	11						5299
HPV31	E6	DLIRCT	98	8						5300
HPV31	E6	DLTIVYRDDT	49	10						5301
HPV31	E6	DTPHGVCT	57	8						5302
HPV31	E6	DTPHGVCTKCL	57	11						5303
HPV31	E6	EIPYDELRL	20	9						5304
HPV31	E6	ELSSALEI	14	8						5305

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E6	ETEVLDFFA	39	8						5306
HPV31	E6	ETEVLDFFA	39	10						5307
HPV31	E6	EVLDFAFT	41	8						5308
HPV31	E6	EVLDFAFTDL	41	10						5309
HPV31	E6	EVLDFAFTDLT	41	11						5310
HPV31	E6	FAFTDLTI	45	8						5311
HPV31	E6	FAFTDLTIV	45	9						5312
HPV31	E6	GICDLLIRCI	95	10						5313
HPV31	E6	GICDLLIRCIIT	95	11						5314
HPV31	E6	GQLTETEV	35	8						5315
HPV31	E6	GQLTETEV	35	9						5316
HPV31	E6	GTTLEKLT	85	8						5317
HPV31	E6	HLDKKKRFHNI	118	11						5318
HPV31	E6	IACWRRPRT	137	9						5319
HPV31	E6	IACWRRPRTET	137	11						5320
HPV31	E6	IVYRDDTPHGV	52	11						5321
HPV31	E6	KLHELSSA	11	8						5322
HPV31	E6	KLHELSSAL	11	9						5323
HPV31	E6	KLHELSSALEI	11	11						5324
HPV31	E6	KLTKNGICDL	90	10						5325
HPV31	E6	KLTKNGICDLL	90	11						5326
HPV31	E6	LIRCIQCQPL	100	11						5327
HPV31	E6	LTETEVLDFA	37	10						5328
HPV31	E6	LTIVYRDDT	50	9						5329
HPV31	E6	LTNGIGCDL	91	9						5330
HPV31	E6	LTNGIGCDLL	91	10						5331
HPV31	E6	LTNGIGCDLLI	91	11						5332
HPV31	E6	NIGGRWTGRCI	127	11						5333
HPV31	E6	PAERPRKL	5	8						5334
HPV31	E6	PAERPRKLHEL	5	11						5335
HPV31	E6	PLCPEKQRHL	109	11	0.0001					5336
HPV31	E6	QLTETEV	36	8						5337
HPV31	E6	QLTETEVLDFA	36	11						5338
HPV31	E6	RLNCVYCKGQL	27	11						5339
HPV31	E6	SALEIPYDEL	17	10						5340
HPV31	E6	SVYGTILEKL	82	10						5341
HPV31	E6	SVYGTILEKLT	82	11						5342
HPV31	E6	TIVYRDDT	51	8						5343
HPV31	E6	TLEKLTNKG	87	10						5344
HPV31	E6	TLEKLTNKG	86	11						5345
HPV31	E6	VLDFAFTDL	42	9						5346
HPV31	E6	VLDFAFTDLT	42	10						5347
HPV31	E6	VLDFAFTDLTI	42	11						5348
HPV31	E7	ATDLHCYEQL	19	10						5349
HPV31	E7	CQCKSTLRL	59	9						5350
HPV31	E7	CQCKSTLRLCV	59	11						5351

Table VIII

AA02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV31	E7	CVQSTQVDI	68	9						5352
HPV31	E7	CVQSTQVDIRI	68	11						5353
HPV31	E7	DIRILQEL	75	8						5354
HPV31	E7	DIRILQELL	75	9						5355
HPV31	E7	DIRILQELLM	75	10						5356
HPV31	E7	DLHCYEQL	21	8						5357
HPV31	E7	DLQPEATDL	14	9						5358
HPV31	E7	DTSNYNIV	48	8						5359
HPV31	E7	DTSNYNIVT	48	9						5360
HPV31	E7	DVIDSPAGQA	36	10						5361
HPV31	E7	EATDLHCYEQL	18	11						5362
HPV31	E7	ELLMGSFGI	81	9						5363
HPV31	E7	ELLMGSFGIV	81	10						5364
HPV31	E7	ETPTLQDYV	4	9						5365
HPV31	E7	ETPTLQDYVL	4	10						5366
HPV31	E7	GIVCPNCST	88	9						5367
HPV31	E7	GIVCPNCSTRL	88	11						5368
HPV31	E7	IVCPNCST	89	8						5369
HPV31	E7	IVCPNCSTRL	89	10						5370
HPV31	E7	IVTFCCQCKST	54	11						5371
HPV31	E7	LLMGSGFI	82	8						5372
HPV31	E7	LLMGSGFIV	82	9						5373
HPV31	E7	LMGSFGIV	83	8						5374
HPV31	E7	LQDYVLDDL	8	8						5375
HPV31	E7	LQELLMGSFGI	79	11						5376
HPV31	E7	LQPEATDL	15	8						5377
HPV31	E7	PAGQAEPTD	41	9						5378
HPV31	E7	PTLQDYVL	6	8						5379
HPV31	E7	PTLQDYVLDDL	6	10						5380
HPV31	E7	QAEPTDSNYNI	44	11						5381
HPV31	E7	QLPDSSEEDV	27	11						5382
HPV31	E7	QVDIRILQEL	73	10						5383
HPV31	E7	QVDIRILQELL	73	11						5384
HPV31	E7	RILQELLM	77	8						5385
HPV31	E7	RLCVQSTQV	66	9						5386
HPV31	E7	RLCVQSTQVDI	66	11						5387
HPV31	E7	STRLRCVQST	63	10	0.0012					5388
HPV31	E7	STQVDIRI	71	8						5389
HPV31	E7	STQVDIRIL	71	9						5390
HPV31	E7	TLQDYVLDDL	7	9						5391
HPV31	E7	TLRLCVQST	64	9	0.0061					5392
HPV31	E7	TLRLCVQSTQV	64	11						5393
HPV31	E7	TQVDIRIL	72	8						5394
HPV31	E7	TQVDIRILQEL	72	11						5395
HPV31	E7	VIDSAPAGQA	37	9						5396
HPV31	E7	VLDLOPEA	12	8						5397

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	E7	VLDLQPEAT	12	9						5398
HPV31	E7	VLDLQPEATDL	12	11						5399
HPV31	E7	VQSTQVDI	69	8						5400
HPV31	E7	VQSTQVDIRI	69	10						5401
HPV31	E7	VQSTQVDIRIL	69	11						5402
HPV31	E7	VFCCQCKST	55	10						5403
HPV31	E7	VFCCQCKSTL	55	11						5404
HPV31	E7	YVLDLQPEA	11	9						5405
HPV31	E7	YVLDLQPEAT	11	10						5406
HPV31	L1	AAIANSDT	347	8						5407
HPV31	L1	AAIANSDTT	347	9						5408
HPV31	L1	AIANSDDT	348	8						5409
HPV31	L1	AILEDWNFGL	398	10						5410
HPV31	L1	AILEDWNFGLT	398	11						5411
HPV31	L1	AITCQKTA	426	8						5412
HPV31	L1	AITPGDCPPL	180	10						5413
HPV31	L1	ALQDTKSNV	213	9						5414
HPV31	L1	ALQDTKSNVPL	213	11						5415
HPV31	L1	AMDFTALQDT	208	10						5416
HPV31	L1	AQHNNGI	317	8						5417
HPV31	L1	AQIFNKPYWM	305	10						5418
HPV31	L1	ATLANSTYFPT	285	11						5419
HPV31	L1	ATVYLPV	9	8						5420
HPV31	L1	ATVYLPVPV	9	10						5421
HPV31	L1	CAAIANSDDT	346	9						5422
HPV31	L1	CAAIANSDDT	346	10						5423
HPV31	L1	CISMDYKQT	147	9						5424
HPV31	L1	CISMDYKQTQL	147	11						5425
HPV31	L1	CLLGCKPPI	158	9						5426
HPV31	L1	DAQIFNKPYWM	304	11						5427
HPV31	L1	DIMTYIHSM	387	9						5428
HPV31	L1	DLQFIFQL	372	8						5429
HPV31	L1	DLQFIFQLCKI	372	11						5430
HPV31	L1	DLYIKGSGST	275	10						5431
HPV31	L1	DLYIKGSGSTA	275	11						5432
HPV31	L1	DMVDTGFGA	200	9						5433
HPV31	L1	DMVDTGFGAM	200	10						5434
HPV31	L1	DQFPLGRKFL	461	10						5435
HPV31	L1	DQFPLGRKFL	461	11						5436
HPV31	L1	DTENSRYA	129	9						5437
HPV31	L1	DTFGAMDFT	203	10						5438
HPV31	L1	DTFGAMDFTA	203	11						5439
HPV31	L1	DTKSNVPL	216	8						5440
HPV31	L1	DTKSNVPLDI	216	10						5441
HPV31	L1	DTSFYNPET	88	9						5442
HPV31	L1	DTTRSTNM	336	8						5443

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L1	DTTRSTNMSV	336	10						5444
HPV31	L1	DTYRFVTSQA	417	10						5445
HPV31	L1	DTYRFVTSQAI	417	11						5446
HPV31	L1	EATVYLPPV	8	9						5447
HPV31	L1	EATVYLPPVPV	8	11						5448
HPV31	L1	ETQRLVWA	95	8						5449
HPV31	L1	ETQRLVWACV	95	10						5450
HPV31	L1	EVGRQPL	107	8						5451
HPV31	L1	EVGRQPLGV	107	10						5452
HPV31	L1	EVNLKEKFS	449	10						5453
HPV31	L1	FIFQLCKI	375	8						5454
HPV31	L1	FIFQLCKIT	375	9						5455
HPV31	L1	FIFQLCKITL	375	10						5456
HPV31	L1	FLQAGYRA	469	9						5457
HPV31	L1	FQLCKITL	377	8						5458
HPV31	L1	FQLCKITLSA	377	10						5459
HPV31	L1	FTALQDTKSNV	211	11						5460
HPV31	L1	FVRHFFNRS	257	11						5461
HPV31	L1	FVTSQAIT	421	8						5462
HPV31	L1	FVTIVDDT	331	8						5463
HPV31	L1	FVTIVDDTTRST	331	11						5464
HPV31	L1	GAMDFAL	207	8						5465
HPV31	L1	GAMDFALQDT	207	11						5466
HPV31	L1	GICWGNQL	323	8						5467
HPV31	L1	GICWGNQLFV	323	10						5468
HPV31	L1	GICWGNQLFVT	323	11						5469
HPV31	L1	GISGHPLL	117	8						5470
HPV31	L1	GLEVGRGQPL	105	10						5471
HPV31	L1	GLQYRVERV	68	9						5472
HPV31	L1	GLQYRVERVRL	68	11						5473
HPV31	L1	GLTTPPSGSL	406	10						5474
HPV31	L1	GQPLGVGI	111	8						5475
HPV31	L1	GTDNRECI	141	8						5476
HPV31	L1	GTDNRECISM	141	10						5477
HPV31	L1	GTVGESVPT	266	9						5478
HPV31	L1	GTVGESVPTDL	266	11						5479
HPV31	L1	GVGISGHPL	115	9						5480
HPV31	L1	GVGISGHPLL	115	10						5481
HPV31	L1	HAGSARLL	36	8						5482
HPV31	L1	HAGSARLLT	36	9						5483
HPV31	L1	HAGSARLLTV	36	10						5484
HPV31	L1	ILEDWNFGL	399	9						5485
HPV31	L1	ILEDWNFGLT	399	10						5486
HPV31	L1	ILEDWNFGLTT	399	11						5487
HPV31	L1	IMTYIHSM	388	8						5488
HPV31	L1	IMTYIHSMNPA	388	11						5489

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L1	IQDGMVDT	196	9						5490
HPV31	L1	ITLSADIM	382	8						5491
HPV31	L1	ITLSADIMT	382	9						5492
HPV31	L1	ITLSADIMTYI	382	11						5493
HPV31	L1	ITPGDCPPL	181	9						5494
HPV31	L1	ITPGDCPPL	181	11						5495
HPV31	L1	IVVPKVSGL	61	9						5496
HPV31	L1	KAGRSAPSA	482	10						5497
HPV31	L1	KITLSADI	381	8						5498
HPV31	L1	KITLSADIM	381	9						5499
HPV31	L1	KITLSADIMT	381	10						5500
HPV31	L1	KIVVPKVSGL	60	10						5501
HPV31	L1	KMVAEPYGD	237	10						5502
HPV31	L1	KMVAEPYGD	237	11						5503
HPV31	L1	KQTLCLL	153	8						5504
HPV31	L1	KVSGLOYRV	65	9						5505
HPV31	L1	KVSTDEYV	20	9						5506
HPV31	L1	KVSTDEYVT	20	10						5507
HPV31	L1	LANSTYFPT	287	9						5508
HPV31	L1	LLGCKPPI	159	8						5509
HPV31	L1	LLNKFD	123	8						5510
HPV31	L1	LLQAGYRA	470	8						5511
HPV31	L1	LLTVGHPYYSI	42	11						5512
HPV31	L1	LQDKSNV	214	8						5513
HPV31	L1	LQDKSNVPL	214	10						5514
HPV31	L1	LQFIFQLCKI	373	10						5515
HPV31	L1	LQFIFQLCKIT	373	11						5516
HPV31	L1	LQYRFRV	69	8						5517
HPV31	L1	LQYRFRVRL	69	10						5518
HPV31	L1	LTPPSGSL	407	9						5519
HPV31	L1	LTVGHPYYSI	43	10						5520
HPV31	L1	LVWACVGL	99	8						5521
HPV31	L1	LVWACVGL	99	10						5522
HPV31	L1	MQRAQGHNGI	314	11						5523
HPV31	L1	MTYIHSNPA	389	10						5524
HPV31	L1	MTYIHSNPAI	389	11						5525
HPV31	L1	MVAEPYGD	238	9						5526
HPV31	L1	MVAEPYGD	238	10						5527
HPV31	L1	MVDTGFGA	201	8						5528
HPV31	L1	MVDTGFGAM	201	9						5529
HPV31	L1	MVTSDAQI	300	8						5530
HPV31	L1	NAITPGDCPPL	179	11						5531
HPV31	L1	NIYHAGSA	32	9						5532
HPV31	L1	NIYHAGSARL	32	11						5533
HPV31	L1	NLKEKFS	451	8						5534
HPV31	L1	NLKEKFSADL	451	10						5535

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L1	NMSVCAAI	342	8						5536
HPV31	L1	NMSVCAAI	342	9						5537
HPV31	L1	NQLFVTVV	328	8						5538
HPV31	L1	NQLFVTVVDT	328	10						5539
HPV31	L1	NQLFVTVVDTT	328	11						5540
HPV31	L1	NVPLDICNSI	220	10						5541
HPV31	L1	PAILEDWNFGL	397	11						5542
HPV31	L1	PLDICNSI	222	8						5543
HPV31	L1	PLELKNSV	188	8						5544
HPV31	L1	PLELKNSVI	188	9						5545
HPV31	L1	PLGRKFLL	464	8						5546
HPV31	L1	PLGRKELLQA	464	10						5547
HPV31	L1	PLGVGISGHP	113	11						5548
HPV31	L1	PLLNKFDDT	122	9						5549
HPV31	L1	PTPSGSMV	294	8						5550
HPV31	L1	PTPSGSMVT	294	9						5551
HPV31	L1	PVPVSKVV	15	8						5552
HPV31	L1	PVPVSKVVST	15	10						5553
HPV31	L1	PVSKVVST	17	8						5554
HPV31	L1	QAITCQKT	425	8						5555
HPV31	L1	QAITCQKTA	425	9						5556
HPV31	L1	QIFNKPYWM	306	9						5557
HPV31	L1	QLCKITLSA	378	9						5558
HPV31	L1	QLCKITLSADI	378	11						5559
HPV31	L1	QLCLLGCKPPI	156	11						5560
HPV31	L1	QLFVTVVDT	329	9						5561
HPV31	L1	QLFVTVVDTT	329	10						5562
HPV31	L1	RAQGHNGI	316	9						5563
HPV31	L1	RARPKFA	476	8						5564
HPV31	L1	RLVWACVGL	98	8						5565
HPV31	L1	RLVWACVGLV	98	11						5566
HPV31	L1	RTNIYYHA	30	8						5567
HPV31	L1	RTNIYYHAGSA	30	11						5568
HPV31	L1	SADIMTYI	385	8						5569
HPV31	L1	SADIMTYIHS	385	11						5570
HPV31	L1	SADLDQFPL	457	9						5571
HPV31	L1	SAPSASTT	487	8						5572
HPV31	L1	SAPSASTTT	487	9						5573
HPV31	L1	SAPSASTTTA	487	11						5574
HPV31	L1	SASTTTPA	490	8						5575
HPV31	L1	SICKYPDYL	228	9						5576
HPV31	L1	SICKYPDYLM	228	11						5577
HPV31	L1	SIPKSDNPKKI	51	11						5578
HPV31	L1	SLEDYRFV	414	9						5579
HPV31	L1	SLEDYRFVT	414	10						5580
HPV31	L1	SLWRPSEA	2	8						5581

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV31	L1	SLWRPSEAT	2	9						5582
HPV31	L1	SLWRPSEATV	2	10						5583
HPV31	L1	SMDYKQTQL	149	9						5584
HPV31	L1	SMDYKQTQLCL	149	11						5585
HPV31	L1	SMDYKQTQLCL	299	9						5586
HPV31	L1	SMVTSDAQI	424	9						5587
HPV31	L1	SQAITCQKT	424	10						5588
HPV31	L1	SQAITCQKTA	424	10						5589
HPV31	L1	STATLANST	283	9						5590
HPV31	L1	STDEYVTRT	23	9						5591
HPV31	L1	STDEYVTRTNI	23	11						5592
HPV31	L1	STNMSVCA	340	8						5593
HPV31	L1	STNMSVCAA	340	9						5594
HPV31	L1	STNMSVCAAI	340	10						5595
HPV31	L1	STNMSVCAAI	340	11						5596
HPV31	L1	STTTPAKRKKT	492	11						5597
HPV31	L1	STYFTPSGSM	290	11						5598
HPV31	L1	SVCAAIANS	344	11						5599
HPV31	L1	SVIQDGD	194	8						5600
HPV31	L1	SVIQDGD	194	9						5601
HPV31	L1	SVIQDGD	194	11						5602
HPV31	L1	SVPTDLYI	271	8						5603
HPV31	L1	TALQDTKSNV	212	10						5604
HPV31	L1	TATLANST	284	8						5605
HPV31	L1	TLANSTYFPT	286	10						5606
HPV31	L1	TLFFYLRRQ	246	11						5607
HPV31	L1	TLADIMT	383	8						5608
HPV31	L1	TLADIMTYI	383	10						5609
HPV31	L1	TQRLVWACV	96	9						5610
HPV31	L1	TQRLVWACVGL	96	11						5611
HPV31	L1	TPAKRKKT	494	9						5612
HPV31	L1	TPPSGSL	408	8						5613
HPV31	L1	TPPSGSL	408	11						5614
HPV31	L1	TTRSTNMSV	337	9						5615
HPV31	L1	TTRSTNMSVCA	337	11						5616
HPV31	L1	TTTPAKRKKT	493	10						5617
HPV31	L1	TVGESVPT	267	8						5618
HPV31	L1	TVGESVPTDL	267	10						5619
HPV31	L1	TVGHPYYSI	44	9						5620
HPV31	L1	TVVDTRST	333	9						5621
HPV31	L1	TVVDTRSTNM	333	11						5622
HPV31	L1	TVYLPVPV	10	9						5623
HPV31	L1	VAEPYGD	239	8						5624
HPV31	L1	VAEPYGD	239	9						5625
HPV31	L1	VIQDGD	195	8						5626
HPV31	L1	VIQDGD	195	10						5627
HPV31	L1	VTRTNIYYHA	28	10						5628

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L1	VTSQAITCQKT	422	11						5628
HPV31	L1	VTVVDTRST	332	10						5629
HPV31	L1	VVDTRST	334	8						5630
HPV31	L1	VVDTRSTNM	334	10						5631
HPV31	L1	VVPKVSGL	62	8						5632
HPV31	L1	VVSTDEYV	21	8						5633
HPV31	L1	VVSTDEYVT	21	9						5634
HPV31	L1	VVSTDEYVTRT	21	11						5635
HPV31	L1	WACVGLV	101	8						5636
HPV31	L1	YIHSMNPA	391	8						5637
HPV31	L1	YIHSMNPAI	391	9						5638
HPV31	L1	YIHSMNPAIL	391	10						5639
HPV31	L1	YIKGSGST	277	8						5640
HPV31	L1	YIKGSGSTA	277	9						5641
HPV31	L1	YIKGSGSTAT	277	10						5642
HPV31	L1	YIKGSGSTATL	277	11						5643
HPV31	L1	YLPVPVPSKV	12	10						5644
HPV31	L1	YLPVPVPSKV	12	11						5645
HPV31	L1	YLRHGEFDL	364	10						5646
HPV31	L1	YLRHGEFDL	250	9						5647
HPV31	L1	YLRHGEFDL	445	8						5648
HPV31	L1	YVFWEVNL	27	11						5649
HPV31	L1	YVTRTNIYYHA	27	11						5650
HPV31	L2	AAGTCPSDV	24	9						5651
HPV31	L2	AAGTCPSDVI	24	10						5652
HPV31	L2	AAGTCPSDVI	143	8						5653
HPV31	L2	AALDVTSV	143	10						5654
HPV31	L2	AALDVTSVST	281	8						5655
HPV31	L2	ALHRPALT	286	8						5656
HPV31	L2	ALTSRRNT	286	9						5657
HPV31	L2	ALTSRRNTV	367	9						5658
HPV31	L2	ATHNVSPST	367	10						5659
HPV31	L2	ATHNVSPSTA	367	11						5660
HPV31	L2	ATHNVSPSTAV	15	10						5661
HPV31	L2	ATQLYQTCKA	15	11						5662
HPV31	L2	ATQLYQTCKAA	226	8						5663
HPV31	L2	ATQVKVI	226	11						5664
HPV31	L2	ATQVKVIDPT	135	9						5665
HPV31	L2	ATTADTTA	135	10						5666
HPV31	L2	ATTADTTAI	135	11						5667
HPV31	L2	ATTADTTAIL	342	11						5668
HPV31	L2	ATTSTLNDGL	376	8						5669
HPV31	L2	AVQSTSAV	376	10						5670
HPV31	L2	AVQSTSAVSA	382	8						5671
HPV31	L2	AVSAYVPT	382	10						5672
HPV31	L2	AVSAYVPTNT	382	11						5673
HPV31	L2	AVSAYVPTNTT	133	8						
HPV31	L2	DIATTADT								

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	DIATTADTT	133	9						5674
HPV31	L2	DIATTADTTA	133	11						5675
HPV31	L2	DIALHRPA	278	9						5676
HPV31	L2	DIALHRPAL	278	10						5677
HPV31	L2	DIALHRPALT	278	11						5678
HPV31	L2	DIPIFSGPDV	400	10						5679
HPV31	L2	DISSINPA	322	8						5680
HPV31	L2	DIYADTDFT	354	9						5681
HPV31	L2	DIYADTDFTV	354	10						5682
HPV31	L2	DQILRYGSM	43	9						5683
HPV31	L2	DQILRYGSMGV	43	11						5684
HPV31	L2	DTDFTVDT	358	8						5685
HPV31	L2	DTDFTVDTA	358	10						5686
HPV31	L2	DTDFTVDTPAT	358	11						5687
HPV31	L2	DTPATHNV	364	8						5688
HPV31	L2	DTTPAILDV	139	9						5689
HPV31	L2	DTTPAILDVT	139	10						5690
HPV31	L2	DVGAPAPI	116	8						5691
HPV31	L2	DVIPKIEHT	31	9						5692
HPV31	L2	DVIPKIEHTT	31	10						5693
HPV31	L2	DVIPKIEHTTI	31	11						5694
HPV31	L2	DVPIEHAPT	408	9						5695
HPV31	L2	DVPIEHAPTQV	408	11						5696
HPV31	L2	EASIRPPV	84	10						5697
HPV31	L2	EIPMDTFI	190	8						5698
HPV31	L2	EIPMDTFIV	190	9						5699
HPV31	L2	EIPMDTFIVST	190	11						5700
HPV31	L2	EMQPLGASA	334	9						5701
HPV31	L2	EMQPLGASAT	334	10						5702
HPV31	L2	EMQPLGASATT	334	11						5703
HPV31	L2	ETSGHLL	171	8						5704
HPV31	L2	ETVNAEESL	253	9						5705
HPV31	L2	FIVSTNNENI	196	10						5706
HPV31	L2	FIVSTNNENIT	196	11						5707
HPV31	L2	FLDIALHRPA	276	11						5708
HPV31	L2	FLSAPKQL	237	8						5709
HPV31	L2	FLSAPKQLI	237	9						5710
HPV31	L2	FLSAPKQLIT	237	10						5711
HPV31	L2	FTDPSVLQPPT	158	11						5712
HPV31	L2	FTDVSVA	459	8						5713
HPV31	L2	FTVDTPAT	361	8						5714
HPV31	L2	FTVDTPATINNV	361	11						5715
HPV31	L2	FVDGGDFYL	433	9						5716
HPV31	L2	GAPAPIPPT	118	11						5717
HPV31	L2	GARVHYYYDI	314	10						5718
HPV31	L2	GASATTST	339	9						5719

0305T0301 0305T0302 0305T0303 0305T0304 0305T0305
Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	GASATTSTL	339	10						5720
HPV31	L2	GATIGARV	310	8						5721
HPV31	L2	GIGSGST	59	8						5722
HPV31	L2	GIVDVGAPA	113	9						5723
HPV31	L2	GIVDVGAPAPI	113	11						5724
HPV31	L2	GLIGSGST	57	10						5725
HPV31	L2	GLYDIYADT	351	9						5726
HPV31	L2	GLYSKATQQV	221	10						5727
HPV31	L2	GTCPSDVI	26	8						5728
HPV31	L2	GTCPSDVIPIKI	26	11						5729
HPV31	L2	GTGGRRTGYV	65	9						5730
HPV31	L2	GTGGRRTGYVPL	65	11						5731
HPV31	L2	GVFFGGLGI	52	9						5732
HPV31	L2	GVRPARL	213	8						5733
HPV31	L2	GVRPARLGL	213	10						5734
HPV31	L2	HAPTQVFPPL	413	11						5735
HPV31	L2	HLLSSSI	175	9						5736
HPV31	L2	HLLSSSSIST	175	11						5737
HPV31	L2	HTIADQI	38	8						5738
HPV31	L2	HTIADQIL	38	9						5739
HPV31	L2	IADQILRYGSM	41	11						5740
HPV31	L2	IALHRPAL	280	8						5741
HPV31	L2	IALHRPALT	280	9						5742
HPV31	L2	IAPDPDFL	270	8						5743
HPV31	L2	IAPDPDFLDI	270	10						5744
HPV31	L2	IAPDPDFLDII	270	11						5745
HPV31	L2	IATTADTT	134	8						5746
HPV31	L2	IATTADTTPA	134	10						5747
HPV31	L2	IATTADTTPAI	134	11						5748
HPV31	L2	IILHRPA	279	8						5749
HPV31	L2	IILHRPAL	279	9						5750
HPV31	L2	IILHRPALT	279	10						5751
HPV31	L2	ILDVTSVST	144	9						5752
HPV31	L2	ILRYGSMGV	45	9						5753
HPV31	L2	ITSSTPIPGV	205	10						5754
HPV31	L2	ITYENPAYET	245	10						5755
HPV31	L2	ITYENPAYETV	245	11						5756
HPV31	L2	IVDVGAPA	114	8						5757
HPV31	L2	IVDVGAPAPI	114	10						5758
HPV31	L2	IVSLVEESGI	105	10						5759
HPV31	L2	IVSLVEESGIV	105	11						5760
HPV31	L2	IVSTNNENI	197	9						5761
HPV31	L2	IVSTNNENIT	197	10						5762
HPV31	L2	KAAGTCPSDV	23	10						5763
HPV31	L2	KAAGTCPSDVI	23	11						5764
HPV31	L2	KATQQVKV	225	8						5765

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	KATQQVKVI	225	9						5766
HPV31	L2	KIEHTTIA	35	8						5767
HPV31	L2	KIEHTTIADQI	35	11						5768
HPV31	L2	KQLITYENPA	242	10						5769
HPV31	L2	KQTLRTRSGA	302	10						5770
HPV31	L2	KQTLRTRSGAT	302	11						5771
HPV31	L2	KVIDPTFL	231	8						5772
HPV31	L2	KVIDPTFLSA	231	10						5773
HPV31	L2	LAPTPQV	423	8						5774
HPV31	L2	LAPTPQVSI	423	10						5775
HPV31	L2	LITYENPA	244	8						5776
HPV31	L2	LITYENPAYET	244	11						5777
HPV31	L2	LLSSSSI	176	8						5778
HPV31	L2	LLSSSSIST	176	10						5779
HPV31	L2	LLSSSSIST	177	9						5780
HPV31	L2	LQPTPAET	164	9						5781
HPV31	L2	LTSRRNTV	287	8						5782
HPV31	L2	LVEESGIV	108	8						5783
HPV31	L2	LVEESGIVDV	108	10						5784
HPV31	L2	MLKRRKRKV	447	9						5785
HPV31	L2	MQPLGASA	335	8						5786
HPV31	L2	MQPLGASAT	335	9						5787
HPV31	L2	MQPLGASATT	335	10						5788
HPV31	L2	MQPLGASATTT	335	11						5789
HPV31	L2	NAEESLYFSNT	256	11						5790
HPV31	L2	NIAPDPDFL	269	9						5791
HPV31	L2	NIAPDPDFLDI	269	11						5792
HPV31	L2	NITSSTPI	204	8						5793
HPV31	L2	NITSSTPIPGV	204	11						5794
HPV31	L2	NTTVPLST	390	8						5795
HPV31	L2	NTVYSRL	292	8						5796
HPV31	L2	NVSPSTAV	370	8						5797
HPV31	L2	NVSPSTAVQST	370	11						5798
HPV31	L2	PAETSGHL	169	8						5799
HPV31	L2	PAETSGHLL	169	9						5800
HPV31	L2	PAETSGHLLL	169	10						5801
HPV31	L2	PAGESIEM	328	8						5802
HPV31	L2	PAGESIEMQPL	328	11						5803
HPV31	L2	PAILDVTSV	142	9						5804
HPV31	L2	PAILDVTSVST	142	11						5805
HPV31	L2	PALTSRRNT	285	9						5806
HPV31	L2	PALTSRRNTV	285	10						5807
HPV31	L2	PAPHPPT	120	9						5808
HPV31	L2	PAPHPPTT	120	10						5809
HPV31	L2	PARGLYSKA	217	10						5810
HPV31	L2	PARGLYSKAT	217	11						5811

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	PATHNVSPST	366	10						5812
HPV31	L2	PATHNVSPSTA	366	11						5813
HPV31	L2	PAYETVNA	250	8						5814
HPV31	L2	PIEHAPTQV	410	9						5815
HPV31	L2	PIFSGPDV	402	8						5816
HPV31	L2	PIFSGPDVPI	402	10						5817
HPV31	L2	PIPGVRRPA	210	9						5818
HPV31	L2	PIPGVRRPARL	210	11						5819
HPV31	L2	PIPHPTT	122	8						5820
HPV31	L2	PIRPPVSI	88	8						5821
HPV31	L2	PIRPPVSDPV	88	11						5822
HPV31	L2	PLAPTPQV	422	9						5823
HPV31	L2	PLAPTPQVSI	422	11						5824
HPV31	L2	PLDPSIVSL	100	9						5825
HPV31	L2	PLDPSIVSLV	100	10						5826
HPV31	L2	PLGASATT	337	8						5827
HPV31	L2	PLGASATT	337	9						5828
HPV31	L2	PLGASATTST	337	11						5829
HPV31	L2	PLSTGFDI	394	8						5830
HPV31	L2	PLSTGFDIPI	394	10						5831
HPV31	L2	PLSTRPST	74	8						5832
HPV31	L2	PLSTRPSTV	74	9						5833
HPV31	L2	PMDTFIVST	192	9						5834
HPV31	L2	PTFLSAPKQL	235	10						5835
HPV31	L2	PTFLSAPKQLI	235	11						5836
HPV31	L2	PTFTDPSV	156	8						5837
HPV31	L2	PTFTDPSVL	156	9						5838
HPV31	L2	PTNTTVPL	388	8						5839
HPV31	L2	PTNTTVPLST	388	10						5840
HPV31	L2	PTPAETSGHL	167	10						5841
HPV31	L2	PTPAETSGHLL	167	11						5842
HPV31	L2	PTQVFPPL	415	9						5843
HPV31	L2	PTQVFPPLA	415	10						5844
HPV31	L2	PTTPQVSI	425	8						5845
HPV31	L2	PTTPQVSIFV	425	10						5846
HPV31	L2	PTTSGFDI	127	8						5847
HPV31	L2	PTTSGFDIA	127	9						5848
HPV31	L2	PTTSGFDIAT	127	10						5849
HPV31	L2	PTTSGFDIATT	127	11						5850
HPV31	L2	PVGPLDPSI	97	9						5851
HPV31	L2	PVGPLDPSIV	97	10						5852
HPV31	L2	PVSIDPVGPL	92	10						5853
HPV31	L2	QILRYGSM	44	8						5854
HPV31	L2	QILRYGSMGV	44	10						5855
HPV31	L2	QLITYENPA	243	9						5856
HPV31	L2	QLYQTCKA	17	8						5857

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	QLYQTCCKAA	17	9						5858
HPV31	L2	QLYQTCCKAAGT	17	11						5859
HPV31	L2	QQVKVIDPT	228	9						5860
HPV31	L2	QQVKVIDPTFL	228	11						5861
HPV31	L2	QTCKAAGT	20	8						5862
HPV31	L2	QTLRTRSGA	303	9						5863
HPV31	L2	QTLRTRSGAT	303	10						5864
HPV31	L2	QTLRTRSGATI	303	11						5865
HPV31	L2	QVFPFLA	417	8						5866
HPV31	L2	QVFPFLAPT	417	10						5867
HPV31	L2	QVFPFLAPTT	417	11						5868
HPV31	L2	QVKVIDPT	229	8						5869
HPV31	L2	QVKVIDPTFL	229	10						5870
HPV31	L2	RASATQLYQT	12	10						5871
HPV31	L2	RLGLYSKA	219	8						5872
HPV31	L2	RLGLYSKAT	219	9						5873
HPV31	L2	RLGNKQTL	298	8						5874
HPV31	L2	RLGNKQTLRT	298	10						5875
HPV31	L2	RTGYVPLST	69	9						5876
HPV31	L2	RTKRASAT	9	8						5877
HPV31	L2	RTKRASATQL	9	10						5878
HPV31	L2	RTRSGATI	306	8						5879
HPV31	L2	RTRSGATIGA	306	10						5880
HPV31	L2	RVHYYYDI	316	8						5881
HPV31	L2	RVHYYYDISSI	316	11						5882
HPV31	L2	RVSYFFTDV	454	9						5883
HPV31	L2	RVSYFFTDVSV	454	11						5884
HPV31	L2	SAPKQLIT	239	8						5885
HPV31	L2	SATQLYQT	14	8						5886
HPV31	L2	SATQLYQTCKA	14	11						5887
HPV31	L2	SATITSTL	341	8						5888
HPV31	L2	SAVSAYVPT	381	9						5889
HPV31	L2	SAVSAYVPTNT	381	11						5890
HPV31	L2	SAYVPTNT	384	8						5891
HPV31	L2	SAYVPTNTT	384	9						5892
HPV31	L2	SAYVPTNTTV	384	10						5893
HPV31	L2	SIDPVGPL	94	8						5894
HPV31	L2	SIEMQPLGA	332	9						5895
HPV31	L2	SIEMQPLGASA	332	11						5896
HPV31	L2	SIFVDGGDFYL	431	11						5897
HPV31	L2	SINPAGESI	325	9						5898
HPV31	L2	SINPAGESIEM	325	11						5899
HPV31	L2	SIPIRPV	86	8						5900
HPV31	L2	SIPIRPVSI	86	10						5901
HPV31	L2	SISTHNYEEI	182	10						5902
HPV31	L2	SIVSLVEESGI	104	11						5903

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	SLVEESGI	107	8						5904
HPV31	L2	SLVEESGIV	107	9						5905
HPV31	L2	SLVEESGIVDV	107	11						5906
HPV31	L2	SLYFSNTSHNI	260	11						5907
HPV31	L2	SMGVFFGGL	50	9						5908
HPV31	L2	SMGVFFGGLGI	50	11						5909
HPV31	L2	STAVQSTSA	374	9						5910
HPV31	L2	STAVQSTSAV	374	10						5911
HPV31	L2	STGFDIPI	396	8						5912
HPV31	L2	STHENPTFT	151	9						5913
HPV31	L2	STHNYEEI	184	8						5914
HPV31	L2	STHNYEEIPM	184	10						5915
HPV31	L2	STKRTKRA	6	8						5916
HPV31	L2	STKRTKRASA	6	10						5917
HPV31	L2	STKRTKRASAT	6	11						5918
HPV31	L2	STLNDGLYDI	346	10						5919
HPV31	L2	STNNENIT	199	8						5920
HPV31	L2	STNNENITSST	199	11						5921
HPV31	L2	STPIPGVRRPA	208	11						5922
HPV31	L2	STRPSTVSEA	76	10						5923
HPV31	L2	STSAVSAYV	379	9						5924
HPV31	L2	STSAVSAYVPT	379	11						5925
HPV31	L2	STVSEASI	80	8						5926
HPV31	L2	STVSEASIPI	80	10						5927
HPV31	L2	SVLQPPTPA	162	9						5928
HPV31	L2	SVLQPPTPAET	162	11						5929
HPV31	L2	SVSTHENPT	149	9						5930
HPV31	L2	SVSTHENPTFT	149	11						5931
HPV31	L2	TADTTPAI	137	8						5932
HPV31	L2	TADTTPAIL	137	9						5933
HPV31	L2	TADTTPAILDV	137	11						5934
HPV31	L2	TAVQSTSA	375	8						5935
HPV31	L2	TAVQSTSAV	375	9						5936
HPV31	L2	TAVQSTSAVSA	375	11						5937
HPV31	L2	TLNDGLYDI	347	9						5938
HPV31	L2	TLNDGLYDIYA	347	11						5939
HPV31	L2	TLTRSGA	304	8						5940
HPV31	L2	TLTRSGATI	304	9						5941
HPV31	L2	TLTRSGAT	304	10						5942
HPV31	L2	TQLYQTCKA	16	9						5943
HPV31	L2	TQLYQTCKAA	16	10						5944
HPV31	L2	TQQVKVIDPT	227	10						5945
HPV31	L2	TQVFPPL	416	8						5946
HPV31	L2	TQVFPPLA	416	9						5947
HPV31	L2	TQVFPPLAPT	416	11						5948
HPV31	L2	TTADITPA	136	8						5949

Table VIII

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV31	L2	TTADTTPAI	136	9						5950
HPV31	L2	TTADTTPAIL	136	10						5951
HPV31	L2	TTIADQIL	39	8						5952
HPV31	L2	TPAILDV	140	8						5953
HPV31	L2	TPAILDVT	140	9						5954
HPV31	L2	TPAILDVTSV	140	11						5955
HPV31	L2	TPQVSIFV	426	9						5956
HPV31	L2	TTSGFDIA	128	8						5957
HPV31	L2	TTSGFDIAT	128	9						5958
HPV31	L2	TTSGFDIATT	128	10						5959
HPV31	L2	TTSGFDIATTA	128	11						5960
HPV31	L2	TTSTLNDGL	344	9						5961
HPV31	L2	TTSTLNDGL	343	10						5962
HPV31	L2	TTVPLSTGFEDI	391	11						5963
HPV31	L2	TVDTPATHNV	362	10						5964
HPV31	L2	TVNAEESL	254	8						5965
HPV31	L2	TVPLSTGFDI	392	10						5966
HPV31	L2	TVSEASIP	81	9						5967
HPV31	L2	VIDPTFLSA	232	9						5968
HPV31	L2	VIPKIEHT	32	8						5969
HPV31	L2	VIPKIEHTT	32	9						5970
HPV31	L2	VIPKIEHTTI	32	10						5971
HPV31	L2	VIPKIEHTTIA	32	11						5972
HPV31	L2	VLPQPTPA	163	8						5973
HPV31	L2	VLPQPTPAET	163	10						5974
HPV31	L2	VQSTSAVSA	377	9						5975
HPV31	L2	VQSTSAVSAYV	377	11						5976
HPV31	L2	VTSVSTHENPT	147	11						5977
HPV31	L2	YADTDFTV	356	8						5978
HPV31	L2	YADTDFTVDT	356	10						5979
HPV31	L2	YLHPSYYM	440	8						5980
HPV31	L2	YLHPSYYML	440	9						5981
HPV31	L2	YMLKRRRRKV	446	10						5982
HPV31	L2	YQTKAAGT	19	9						5983
HPV31	L2	YVPLSTRPST	72	10						5984
HPV31	L2	YVPLSTRPSTV	72	11						5985
HPV31	L2	YVPTNTIV	386	8						5986
HPV31	L2	YVPTNTIVPL	386	10						5987
HPV33	E1	AAAFKSNQA	382	11						5988
HPV33	E1	AACSQSA	90	8						5989
HPV33	E1	AACSQSAEDV	90	11						5990
HPV33	E1	AAEDVVDRA	96	9						5991
HPV33	E1	AAEDVVDRAA	96	10						5992
HPV33	E1	AAFLKSNQA	383	10						5993
HPV33	E1	AANPCRTSI	104	9						5994
HPV33	E1	AARALFNI	65	8						5995

HPV33 E1 596-604
 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	ALDGNESI	532	9						5996
HPV33	E1	ALDGNESIDV	532	11						5997
HPV33	E1	ALKRKFAA	84	8						5998
HPV33	E1	ALVQLKCPPL	546	10						5999
HPV33	E1	ALVQLKCPPL	546	11						6000
HPV33	E1	ALYWFRFA	311	8						6001
HPV33	E1	ALYWFRFAM	311	9						6002
HPV33	E1	AMSNISDV	318	8						6003
HPV33	E1	AMSNISDVQGT	318	11						6004
HPV33	E1	AQLADSNNA	373	10						6005
HPV33	E1	AQLADSNNA	373	11						6006
HPV33	E1	AVCALKRKFA	81	10						6007
HPV33	E1	AVCALKRKFAA	81	11						6008
HPV33	E1	AVIERTGDNI	22	11						6009
HPV33	E1	CALKRKFA	83	8						6010
HPV33	E1	CALKRKFAA	83	9						6011
HPV33	E1	CALYWFRT	310	8						6012
HPV33	E1	CALYWFRTA	310	9						6013
HPV33	E1	CALYWFRTAM	310	10						6014
HPV33	E1	CITGYGISPSV	230	11						6015
HPV33	E1	CLTCDRGI	259	8						6016
HPV33	E1	CLTCDRGII	259	9						6017
HPV33	E1	CLTCDRGIII	259	10						6018
HPV33	E1	CLTCDRGIIL	259	11						6019
HPV33	E1	CMLICGPA	465	8						6020
HPV33	E1	CMLICGPANT	465	10						6021
HPV33	E1	CMVIEPPKL	297	9						6022
HPV33	E1	CTDWCTGYGI	226	11						6023
HPV33	E1	CTGWFEVEA	14	9						6024
HPV33	E1	CTGWFEVEAV	14	10						6025
HPV33	E1	CTGWFEVEAVI	14	11						6026
HPV33	E1	CTYRKRI	118	8						6027
HPV33	E1	CTYRKRIDEL	118	11						6028
HPV33	E1	CVNSKSHFWL	494	10						6029
HPV33	E1	DAKIGMIDDV	508	10						6030
HPV33	E1	DAKIGMIDDVT	508	11						6031
HPV33	E1	DIAYYYAQL	367	9						6032
HPV33	E1	DIAYYYAQLA	367	10						6033
HPV33	E1	DLLEFIDDSM	46	10						6034
HPV33	E1	DLNAVICAL	78	8						6035
HPV33	E1	DLSEMVQWA	349	9	0.0003					6036
HPV33	E1	DTEAARAL	62	8						6037
HPV33	E1	DTEAARALFNI	62	11						6038
HPV33	E1	DVKHRLV	541	8						6039
HPV33	E1	DVKHRLVQL	541	10						6040
HPV33	E1	DVQGTTPWI	324	10						6041

HPV33 E1 6235 F4350
 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	DVTPISWT	516	8						6042
HPV33	E1	DVTPISWTYI	516	10						6043
HPV33	E1	EAARALFNI	64	9						6044
HPV33	E1	EAVIERRT	21	8						6045
HPV33	E1	EAYGISFM	206	8						6046
HPV33	E1	EAYGISFMEL	206	10						6047
HPV33	E1	EAYGISFMELV	206	11						6048
HPV33	E1	EISIDVKHRA	537	10						6049
HPV33	E1	EISIDVKHRAL	537	11						6050
HPV33	E1	EISNVLHSSNT	186	11						6051
HPV33	E1	ELEDGYGNT	127	10						6052
HPV33	E1	ELTDDSDI	361	8						6053
HPV33	E1	ELTDDSDIA	361	9						6054
HPV33	E1	ELVRPFKSDKT	214	11						6055
HPV33	E1	EMVQWAYDNEL	352	11						6056
HPV33	E1	ETADDSGT	38	8						6057
HPV33	E1	ETADDSGTDL	38	10						6058
HPV33	E1	ETADDSGTDLL	38	11						6059
HPV33	E1	ETCMVIEPKL	295	11						6060
HPV33	E1	ETNVDSCNV	173	10						6061
HPV33	E1	ETNVDSCENV	173	11						6062
HPV33	E1	ETQQMVOQV	139	9						6063
HPV33	E1	EVEAVIERRT	19	10						6064
HPV33	E1	EVETQQMV	137	8						6065
HPV33	E1	EVETQQMVQOV	137	11						6066
HPV33	E1	EVSCETNV	169	8						6067
HPV33	E1	FAACSQSA	89	8						6068
HPV33	E1	FAACSQSA	89	9						6069
HPV33	E1	FIDDSMENSI	50	10						6070
HPV33	E1	FLGAFKKFL	449	9						6071
HPV33	E1	FLKGCVISCV	486	10						6072
HPV33	E1	FLKGIPKKSCM	456	11						6073
HPV33	E1	FLKNSQA	385	8						6074
HPV33	E1	FLKNSQA	385	10	0.0011					6075
HPV33	E1	FLKNSQAQKI	385	11						6076
HPV33	E1	FLKNSQAQKIV	385	11						6077
HPV33	E1	GAFKFLKGI	451	10						6078
HPV33	E1	GIHILLI	265	8						6079
HPV33	E1	GIMCRHYKKA	399	10						6080
HPV33	E1	GIPKKSCM	459	8						6081
HPV33	E1	GIPKKSCML	459	9						6082
HPV33	E1	GIPKKSCMLI	459	10						6083
HPV33	E1	GISFMELV	209	8						6084
HPV33	E1	GISPSVAESL	235	10						6085
HPV33	E1	GMGCTGWFEV	11	10						6086
HPV33	E1	GMIDDVTPI	512	9						6087
HPV33	E1	GMSLIQFL	480	8						6088

Table VIII
Δ02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	GQWQSRCEKT	416	11						6088
HPV33	E1	GTDLLEFI	44	8						6089
HPV33	E1	GTDSRWPYL	564	9						6090
HPV33	E1	GTNGAGMGCT	6	10						6091
HPV33	E1	GTTPEWIDRL	327	10						6092
HPV33	E1	GTTPEWIDRLT	327	11						6093
HPV33	E1	GVGDDSEV	163	8						6094
HPV33	E1	HLQCLTCDRGI	256	11						6095
HPV33	E1	IAYYYAQL	368	8						6096
HPV33	E1	IAYYYAQLA	368	9						6097
HPV33	E1	ILYKFKEA	200	8						6098
HPV33	E1	ILYKFKEAYGI	200	11						6099
HPV33	E1	IMCRHYKKA	400	9						6100
HPV33	E1	IQADTEAA	59	8						6101
HPV33	E1	IQADTEAARA	59	10						6102
HPV33	E1	IQADTEAARAL	59	11						6103
HPV33	E1	IQEGEDDL	72	8						6104
HPV33	E1	IQEGEDDLNA	72	10						6105
HPV33	E1	IQEGEDDLNAV	72	11						6106
HPV33	E1	IQFLKGCV	484	8						6107
HPV33	E1	IQFLKGCVI	484	9						6108
HPV33	E1	IQSRCEKT	419	8						6109
HPV33	E1	ITGYGISPSV	231	10						6110
HPV33	E1	ITGYGISPSVA	231	11						6111
HPV33	E1	IVKDCGIM	394	8						6112
HPV33	E1	IVQLLRYQNI	435	10						6113
HPV33	E1	KAERKMSI	407	9						6114
HPV33	E1	KANILYKFKEA	197	11						6115
HPV33	E1	KIGMIDDDV	510	8						6116
HPV33	E1	KIGMIDDDVT	510	9						6117
HPV33	E1	KIGMIDDDVTPI	510	11						6118
HPV33	E1	KIVKDCGI	393	8						6119
HPV33	E1	KIVKDCGIM	393	9						6120
HPV33	E1	KLMSNLLSI	285	9						6121
HPV33	E1	KLRSQTCA	304	8						6122
HPV33	E1	KLRSQTCAL	304	9						6123
HPV33	E1	KMSIGQWI	412	8						6124
HPV33	E1	KQHSLYTHL	249	9						6125
HPV33	E1	KTNDGGNWRPI	425	11						6126
HPV33	E1	KTCTDWC	223	9						6127
HPV33	E1	KTCTDWCIT	223	10						6128
HPV33	E1	KVLIKQHS	245	9						6129
HPV33	E1	KVLIKQHSLYT	245	11						6130
HPV33	E1	LADSNNA	375	8						6131
HPV33	E1	LADSNNA	375	9						6132
HPV33	E1	LADSNNA	375	10						6133

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	LICGPANT	467	8						6134
HPV33	E1	LIKQHSLYT	247	9						6135
HPV33	E1	LIKQHSLYTHL	247	11						6136
HPV33	E1	LIQFLKGCV	483	9						6137
HPV33	E1	LIQFLKGCVI	483	10						6138
HPV33	E1	LIRFRCSKNRL	271	11						6139
HPV33	E1	LLEFIDDSM	47	9						6140
HPV33	E1	LLLTSTNA	555	9						6141
HPV33	E1	LLLTSTNAGT	555	11						6142
HPV33	E1	LLRYQNIET	438	10						6143
HPV33	E1	LLRYQNIETA	438	11						6144
HPV33	E1	LLSIPETCM	290	9						6145
HPV33	E1	LLSIPETCMV	290	10						6146
HPV33	E1	LLSIPETCMVI	290	11						6147
HPV33	E1	LLTSTNA	556	8						6148
HPV33	E1	LLTSTNAGT	556	10						6149
HPV33	E1	LMSNLLSI	286	8						6150
HPV33	E1	LMSNLLSIPET	286	11						6151
HPV33	E1	LQCLTCDRGI	257	10						6152
HPV33	E1	LQCLTCDRGII	257	11						6153
HPV33	E1	LQEISNVL	184	8						6154
HPV33	E1	LQHSFNDNI	339	9						6155
HPV33	E1	LQPLSDAKI	503	9						6156
HPV33	E1	LQPLSDAKIGM	503	11						6157
HPV33	E1	LTCDRGII	260	8						6158
HPV33	E1	LTCDRGIII	260	9						6159
HPV33	E1	LTCDRGIIIL	260	10						6160
HPV33	E1	LTCDRGIIILL	260	11						6161
HPV33	E1	LTDDSDIA	362	8						6162
HPV33	E1	LTSTNAGT	557	9						6163
HPV33	E1	LTVAKLMSNL	281	10						6164
HPV33	E1	LTVAKLMSNLL	281	11						6165
HPV33	E1	LVQLKCPPL	547	9	0.0003					6166
HPV33	E1	LVQLKCPPLL	547	10						6167
HPV33	E1	LVQLKCPPLL	547	11						6168
HPV33	E1	LVRPFKDKT	215	10						6169
HPV33	E1	MADPEGTNGA	1	10						6170
HPV33	E1	MDDVTPI	513	8						6171
HPV33	E1	MDDVTPISWT	513	11						6172
HPV33	E1	MLICGPANT	466	9						6173
HPV33	E1	MVIEPPKL	298	8						6174
HPV33	E1	MVQWAYDNEL	353	10						6175
HPV33	E1	MVQWAYDNELT	353	11						6176
HPV33	E1	NAGTDSRWPYL	562	11						6177
HPV33	E1	NALDGNEI	531	8						6178
HPV33	E1	NALDGNEISI	531	10						6179

Table VIII
A02 Supermotif Peptides with Binding Information

Protein Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	NAVCALKRKF	80	11						6180
HPV33	E1	NIEFTAF	443	8						6181
HPV33	E1	NIEFTAFGA	443	10						6182
HPV33	E1	NIFDLSEM	346	8						6183
HPV33	E1	NIFDLSEMV	346	9						6184
HPV33	E1	NILYKFKEA	199	9						6185
HPV33	E1	NIQEGEDDL	71	9						6186
HPV33	E1	NIQEGEDDLNA	71	11						6187
HPV33	E1	NISDVQGT	321	8						6188
HPV33	E1	NISDVQGT	321	9						6189
HPV33	E1	NISEDEDET	31	9						6190
HPV33	E1	NISEDEDETA	31	10						6191
HPV33	E1	NISTFKCSA	627	9						6192
HPV33	E1	NLLSIPET	289	8						6193
HPV33	E1	NLLSIPETCM	289	10						6194
HPV33	E1	NLLSIPETCMV	289	11						6195
HPV33	E1	NLNDLESSGV	155	10						6196
HPV33	E1	NTEVETQQM	135	9						6197
HPV33	E1	NTEVETQQMV	135	10						6198
HPV33	E1	NTGKSYFGM	473	9						6199
HPV33	E1	NTGKSYFGMSL	473	11						6200
HPV33	E1	NVDSCENV	175	8						6201
HPV33	E1	NVDSCENV	175	9						6202
HPV33	E1	NVDSCENVTL	175	10						6203
HPV33	E1	NVLHSSNT	189	8						6204
HPV33	E1	NVLHSSNTKA	189	10						6205
HPV33	E1	NVTLQEISNV	181	10						6206
HPV33	E1	NVTLQEISNV	181	11						6207
HPV33	E1	PANTGKSYFGM	471	11						6208
HPV33	E1	PISWTYIDDM	519	11						6209
HPV33	E1	PIVQLLRYQNI	434	11						6210
HPV33	E1	PLLLTSNT	554	8						6211
HPV33	E1	PLLLTSNTNA	554	10						6212
HPV33	E1	PLSDAKIGM	505	9						6213
HPV33	E1	PLSDAKIGMI	505	10						6214
HPV33	E1	QADTEAARA	60	9						6215
HPV33	E1	QADTEAARAL	60	10						6216
HPV33	E1	QAKIVKDCGI	391	10						6217
HPV33	E1	QAKIVKDCGIM	391	11						6218
HPV33	E1	QLADSNSNA	374	9						6219
HPV33	E1	QLADSNSNA	374	10						6220
HPV33	E1	QLADSNSNA	374	11						6221
HPV33	E1	QLKCPPLL	549	8						6222
HPV33	E1	QLKCPPLL	549	9						6223
HPV33	E1	QLKCPPLLT	549	10						6224
HPV33	E1	QLLRYQNI	437	8						6225

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	QLLRYQNIET	437	11						6226
HPV33	E1	QQVESQNGDT	145	10						6227
HPV33	E1	QTCALYWFR	308	10						6228
HPV33	E1	QTCALYWFR	308	11						6229
HPV33	E1	QTCALYWFR	308	11						6230
HPV33	E1	QTCALYWFR	308	11						6231
HPV33	E1	QTCALYWFR	308	11						6232
HPV33	E1	QTCALYWFR	308	11						6233
HPV33	E1	QTCALYWFR	308	11						6234
HPV33	E1	QTCALYWFR	308	11						6235
HPV33	E1	QTCALYWFR	308	11						6236
HPV33	E1	QTCALYWFR	308	11						6237
HPV33	E1	QTCALYWFR	308	11						6238
HPV33	E1	QTCALYWFR	308	11						6239
HPV33	E1	QTCALYWFR	308	11						6240
HPV33	E1	QTCALYWFR	308	11						6241
HPV33	E1	QTCALYWFR	308	11						6242
HPV33	E1	QTCALYWFR	308	11						6243
HPV33	E1	QTCALYWFR	308	11						6244
HPV33	E1	QTCALYWFR	308	11						6245
HPV33	E1	QTCALYWFR	308	11						6246
HPV33	E1	QTCALYWFR	308	11						6247
HPV33	E1	QTCALYWFR	308	11						6248
HPV33	E1	QTCALYWFR	308	11						6249
HPV33	E1	QTCALYWFR	308	11						6250
HPV33	E1	QTCALYWFR	308	11						6251
HPV33	E1	QTCALYWFR	308	11						6252
HPV33	E1	QTCALYWFR	308	11						6253
HPV33	E1	QTCALYWFR	308	11						6254
HPV33	E1	QTCALYWFR	308	11						6255
HPV33	E1	QTCALYWFR	308	11						6256
HPV33	E1	QTCALYWFR	308	11						6257
HPV33	E1	QTCALYWFR	308	11						6258
HPV33	E1	QTCALYWFR	308	11						6259
HPV33	E1	QTCALYWFR	308	11						6260
HPV33	E1	QTCALYWFR	308	11						6261
HPV33	E1	QTCALYWFR	308	11						6262
HPV33	E1	QTCALYWFR	308	11						6263
HPV33	E1	QTCALYWFR	308	11						6264
HPV33	E1	QTCALYWFR	308	11						6265
HPV33	E1	QTCALYWFR	308	11						6266
HPV33	E1	QTCALYWFR	308	11						6267
HPV33	E1	QTCALYWFR	308	11						6268
HPV33	E1	QTCALYWFR	308	11						6269
HPV33	E1	QTCALYWFR	308	11						6270
HPV33	E1	QTCALYWFR	308	11						6271

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	TAFLGAFKKFL	447	11						6272
HPV33	E1	TAMNISDV	317	9						6273
HPV33	E1	TLQEISNV	183	8						6274
HPV33	E1	TLQEISNVL	183	9						6275
HPV33	E1	TQQMVQQV	140	8						6276
HPV33	E1	TTPEWIDRL	328	9						6277
HPV33	E1	TTPEWIDRLT	328	10						6278
HPV33	E1	TTPEWIDRLTV	328	11						6279
HPV33	E1	TVAKLMSNL	282	9						6280
HPV33	E1	TVAKLMSNLL	282	10						6281
HPV33	E1	TVLQHSFNDNI	337	11						6282
HPV33	E1	VAESLKVLI	240	8						6283
HPV33	E1	VAESLKVLI	240	9						6284
HPV33	E1	VAKLMSNL	283	8						6285
HPV33	E1	VAKLMSNLL	283	9						6286
HPV33	E1	VAKLMSNLLSI	283	11						6287
HPV33	E1	VIPEPKLRSQT	299	11						6288
HPV33	E1	VIERTGDNI	23	10						6289
HPV33	E1	VLHSSNTKA	190	9						6290
HPV33	E1	VLHSSNTKANI	190	11						6291
HPV33	E1	VLIKQHSI	246	8						6292
HPV33	E1	VLIKQHSIYT	246	10						6293
HPV33	E1	VLOHSEFNDNI	338	10						6294
HPV33	E1	VQGTTPEWI	325	9						6295
HPV33	E1	VQLKCPPL	548	8						6296
HPV33	E1	VQLKCPPLL	548	9						6297
HPV33	E1	VQLKCPPLL	548	10						6298
HPV33	E1	VQLKCPPLLIT	548	11						6299
HPV33	E1	VQLKCPPLLIT	436	9						6300
HPV33	E1	VQLRYQNI	144	11						6301
HPV33	E1	VQQVESQNGDT	354	9						6302
HPV33	E1	VQWAYDNEL	354	10						6303
HPV33	E1	VQWAYDNELT	354	10						6304
HPV33	E1	VTLQEISNV	182	9						6305
HPV33	E1	VTLQEISNVL	182	10						6306
HPV33	E1	VTPISWTYI	517	9						6307
HPV33	E1	VVDRAANPCRT	100	11						6308
HPV33	E1	WAYDNELT	356	8						6309
HPV33	E1	WIDRLTVL	332	8						6310
HPV33	E1	WQSRCEKT	418	9						6311
HPV33	E1	WLQPLSDA	502	8						6312
HPV33	E1	WLQPLSDAKI	502	10						6313
HPV33	E1	WTYIDDDYM	522	8						6314
HPV33	E1	WTYIDDDYMRNA	522	11						6315
HPV33	E1	YACLADSNNA	372	11						6316
HPV33	E1	YIDDDYMRNA	524	9						6317
HPV33	E1	YIDDDYMRNAL	524	10						6317

0126 T49 026 T4950
 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E1	YLHSLTV	571	8						6318
HPV33	E1	YMRNALDGNEL	528	11						6319
HPV33	E1	YQNIEFA	441	8						6320
HPV33	E1	YQNIEFAFL	441	10						6321
HPV33	E1	YTHLQCLT	254	8						6322
HPV33	E2	AAAKRRRPA	223	9						6323
HPV33	E2	AAAKRRRPADT	223	11						6324
HPV33	E2	AAKRRRPA	224	8						6325
HPV33	E2	AAKRRRPADT	224	10						6326
HPV33	E2	AAKRRRPADTT	224	11						6327
HPV33	E2	AAKYSKTQM	175	9						6328
HPV33	E2	ALDNRTART	249	9						6329
HPV33	E2	ALDNRTART	249	10						6330
HPV33	E2	ALDNRTARTAT	249	11						6331
HPV33	E2	ALLYTAKQM	41	9						6332
HPV33	E2	AQPLTKLFA	237	10						6333
HPV33	E2	ATNCTNKQRT	258	10						6334
HPV33	E2	ATNCTNKQRTV	258	11						6335
HPV33	E2	AVQEKILD	10	9						6336
HPV33	E2	CADPALDNRT	245	10						6337
HPV33	E2	CADPALDNRTA	245	11						6338
HPV33	E2	CALLYTAKQM	40	10						6339
HPV33	E2	CTMVTGKV	145	8						6340
HPV33	E2	CTMVTGKVDYI	145	11						6341
HPV33	E2	CTNKQRTV	261	8						6342
HPV33	E2	DAAKYSKT	174	8						6343
HPV33	E2	DAAKYSKTQM	174	10						6344
HPV33	E2	DLPSQIEHWKL	25	11						6345
HPV33	E2	DLYEADKT	17	8						6346
HPV33	E2	DLYEADKTDL	17	10						6347
HPV33	E2	DTAQPLTKL	235	9						6348
HPV33	E2	DTCTMVTGKV	143	10						6349
HPV33	E2	DTTDTAQPL	232	9						6350
HPV33	E2	DTTDTAQPLT	232	10						6351
HPV33	E2	EADKTDLPST	20	11						6352
HPV33	E2	EISARLNA	3	8						6353
HPV33	E2	EISARLNAV	3	9						6354
HPV33	E2	EYIIEEDT	136	9						6355
HPV33	E2	EYIIEEDTCT	136	11						6356
HPV33	E2	ELQMALET	74	8						6357
HPV33	E2	ELQMALET	74	9						6358
HPV33	E2	ELYSMSST	298	9						6359
HPV33	E2	EQQQMFL	328	8						6360
HPV33	E2	EQQQMFLGT	328	10						6361
HPV33	E2	EQQQMFLGT	328	11						6362
HPV33	E2	ETLSKSQYST	80	10						6363

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E2	EVHVGQV	185	8						6364
HPV33	E2	EVHVGQVI	185	9						6365
HPV33	E2	EVHVGQVIV	185	10						6366
HPV33	E2	FLGTVKIPPT	334	10						6367
HPV33	E2	FLGTVKIPPTV	334	11						6368
HPV33	E2	FQVIELQM	70	8						6369
HPV33	E2	FQVIELQMA	70	9						6370
HPV33	E2	FQVIELQMAL	70	10						6371
HPV33	E2	FVTEQQQM	325	9						6372
HPV33	E2	FVTEQQQMFL	325	11						6373
HPV33	E2	GIVTVFV	319	8						6374
HPV33	E2	GIVTVFVT	319	9						6375
HPV33	E2	GMYYIHNCVKV	156	11						6376
HPV33	E2	GQVIVCPT	190	8						6377
HPV33	E2	GQVIVCPTSI	190	10						6378
HPV33	E2	GTVKIPPT	336	8						6379
HPV33	E2	GTVKIPPTV	336	9						6380
HPV33	E2	GTVKIPPTVQI	336	11						6381
HPV33	E2	HLCHQVPSL	53	10						6382
HPV33	E2	HLCHQVPSLL	53	11						6383
HPV33	E2	HLKGESNL	278	9						6384
HPV33	E2	HQVVPSSL	56	8						6385
HPV33	E2	HQVVPSLLA	56	9						6386
HPV33	E2	HVGGQVIV	187	8						6387
HPV33	E2	HVGGQVIVCPT	187	11						6388
HPV33	E2	IIEEDTCT	139	8						6389
HPV33	E2	IIEEDTCTM	139	9						6390
HPV33	E2	IIEEDTCTMV	139	10						6391
HPV33	E2	IIEEDTCTMVT	139	11						6392
HPV33	E2	ILDLYEADKT	15	10						6393
HPV33	E2	IVHLKGESNL	276	11						6394
HPV33	E2	IVTVTFVT	320	8						6395
HPV33	E2	KAFQVIEL	68	8						6396
HPV33	E2	KAFQVIELQM	68	10						6397
HPV33	E2	KAFQVIELQMA	68	11						6398
HPV33	E2	KILDLYEA	14	8						6399
HPV33	E2	KILDLYEADKT	14	11						6400
HPV33	E2	KIPPTVQI	339	8						6401
HPV33	E2	KIPPTVQIST	339	10						6402
HPV33	E2	KLFCADPA	242	8						6403
HPV33	E2	KLFCADPAL	242	9						6404
HPV33	E2	KLIRMECA	34	8						6405
HPV33	E2	KLIRMECAL	34	9						6406
HPV33	E2	KLIRMECALL	34	10						6407
HPV33	E2	KQGETVTV	112	8						6408
HPV33	E2	KQMGFSL	47	8						6409

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E2	KQRTVCSSNV	264	10						6410
HPV33	E2	KQRTVCSSNVA	264	11						6411
HPV33	E2	KTDLP SQI	23	8						6412
HPV33	E2	KT KAFQVI	66	8						6413
HPV33	E2	KT KAFQVIEL	66	10						6414
HPV33	E2	KTQMWEVHV	180	9						6415
HPV33	E2	KVDYIGMYI	151	10						6416
HPV33	E2	KVYFKYFKEDA	165	11						6417
HPV33	E2	LASKTKAFQV	63	10						6418
HPV33	E2	LASKTKAFQVI	63	11						6419
HPV33	E2	LIRMECAL	35	8						6420
HPV33	E2	LIRMECALL	35	9						6421
HPV33	E2	LIRMECALLYT	35	11						6422
HPV33	E2	LLASKTKA	62	8						6423
HPV33	E2	LLASKTKAFQV	62	11						6424
HPV33	E2	LLYTAKQM	42	8						6425
HPV33	E2	LQMAETL	75	8						6426
HPV33	E2	LQOTSLEV	94	8						6427
HPV33	E2	LQOTSLEVWL	94	10						6428
HPV33	E2	LTKLFCADPA	240	10						6429
HPV33	E2	LTKLFCADPAL	240	11						6430
HPV33	E2	MVTGKVDYI	147	9						6431
HPV33	E2	MVTGKVDYIGM	147	11						6432
HPV33	E2	NAVQEKIL	9	8						6433
HPV33	E2	NAVQEKILD	9	10						6434
HPV33	E2	NQISTTET	202	8						6435
HPV33	E2	NQISTTETA	202	9						6436
HPV33	E2	NQISTTETADI	202	11						6437
HPV33	E2	NTMDYTNWGEI	127	11						6438
HPV33	E2	NVAPIVHL	272	8						6439
HPV33	E2	PADTTDTA	230	8						6440
HPV33	E2	PADTTDTAQPL	230	11						6441
HPV33	E2	PALDNRTA	248	8						6442
HPV33	E2	PALDNRTART	248	10						6443
HPV33	E2	PALDNRTARTA	248	11						6444
HPV33	E2	PLTKLFCA	239	8						6445
HPV33	E2	PLTKLFCADPA	239	11						6446
HPV33	E2	PQAAAKRRRPA	221	11						6447
HPV33	E2	PTSISNQI	196	9						6448
HPV33	E2	PTSISNQIST	196	11						6449
HPV33	E2	PTVQISTGFM	342	10						6450
HPV33	E2	PTVQISTGFM	342	11						6451
HPV33	E2	QAAAKRRRPA	222	10						6452
HPV33	E2	QIEHWKLI	29	8						6453
HPV33	E2	QIEHWKLIRM	29	10						6454
HPV33	E2	QISTGFM	345	8						6455

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E2	QISTGFMTL	345	9						6456
HPV33	E2	QISTTETA	203	8						6457
HPV33	E2	QISTTETADI	203	10						6458
HPV33	E2	QMFLGTVKI	332	9						6459
HPV33	E2	QMGFHLCHQV	48	11						6460
HPV33	E2	QMWVHVHGGQV	182	11						6461
HPV33	E2	QQMFLGTV	331	8						6462
HPV33	E2	QQMFLGTVKI	331	10						6463
HPV33	E2	QQQMFLGT	330	8						6464
HPV33	E2	QQQMFLGTV	330	9						6465
HPV33	E2	QQQMFLGTVKI	330	11						6466
HPV33	E2	QQQMFLGT	329	9						6467
HPV33	E2	QQQMFLGTV	329	10						6468
HPV33	E2	QQTSLVWL	95	9						6469
HPV33	E2	QTDNDNRPPQA	213	11						6470
HPV33	E2	QTSLEVWL	96	8						6471
HPV33	E2	QVIELQMA	71	8						6472
HPV33	E2	QVIELQMAL	71	9						6473
HPV33	E2	QVIELQMALET	71	11						6474
HPV33	E2	QVIVCPTSI	191	9						6475
HPV33	E2	QVVPSSLA	57	8						6476
HPV33	E2	QVVPSSLASKT	57	11						6477
HPV33	E2	RLKPYKEL	292	8						6478
HPV33	E2	RLNAVQEKI	7	9						6479
HPV33	E2	RLNAVQEKIL	7	10						6480
HPV33	E2	RMECALLYT	37	9						6481
HPV33	E2	RMECALLYTA	37	10						6482
HPV33	E2	RTARTATNCT	253	10						6483
HPV33	E2	RTVCSSNV	266	8						6484
HPV33	E2	RTVCSSNVA	266	- 9						6485
HPV33	E2	RTVCSSNVAPI	266	11						6486
HPV33	E2	SARLNAVQEKI	5	11						6487
HPV33	E2	SISSNQIST	198	9						6488
HPV33	E2	SISSNQISTT	198	10						6489
HPV33	E2	SLKCLRYRL	285	9						6490
HPV33	E2	SLASKTKA	61	9						6491
HPV33	E2	SMSTWHWT	302	9						6492
HPV33	E2	SQIEHWKL	28	8						6493
HPV33	E2	SQIEHWKLI	28	9						6494
HPV33	E2	SQIEHWKLIRM	28	11						6495
HPV33	E2	SQWTLQQT	90	8						6496
HPV33	E2	SQWTLQQTSL	90	10						6497
HPV33	E2	SQYSTSQWT	85	9						6498
HPV33	E2	SQYSTSQWTL	85	10						6499
HPV33	E2	STSQWTLQQT	88	10						6500
HPV33	E2	STTETADI	205	8						6501

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E2	STTETADIQT	205	10						6502
HPV33	E2	TAKQMGFSLH	45	10						6503
HPV33	E2	TAQPLTKL	236	8						6504
HPV33	E2	TAQPLTKLFCA	236	11						6505
HPV33	E2	TARTATNCT	254	9						6506
HPV33	E2	TATNCTNKQRT	257	11						6507
HPV33	E2	TLQQTSLV	93	9						6508
HPV33	E2	TLQQTSLVWL	93	11						6509
HPV33	E2	TLKSQYST	81	9						6510
HPV33	E2	TMDYTNWGEI	128	10						6511
HPV33	E2	TMVTGKVDYI	146	10						6512
HPV33	E2	TQMWEVHV	181	8						6513
HPV33	E2	TTDTAQPL	233	8						6514
HPV33	E2	TTDTAQPLT	233	9						6515
HPV33	E2	TTDTAQPLTKL	233	11						6516
HPV33	E2	TTETADIQT	206	9						6517
HPV33	E2	TVCSSNVA	267	8						6518
HPV33	E2	TVCSSNVAPI	267	10						6519
HPV33	E2	TVCSSNVAPIV	267	11						6520
HPV33	E2	TVKIPPTV	337	8						6521
HPV33	E2	TVKIPPTVQI	337	10						6522
HPV33	E2	TVQISTGFM	343	9						6523
HPV33	E2	TVQISTGFMT	343	10						6524
HPV33	E2	TVQISTGFMTL	343	11						6525
HPV33	E2	TVQYDNDKKNT	118	11						6526
HPV33	E2	VIELQMAL	72	8						6527
HPV33	E2	VIELQMALET	72	10						6528
HPV33	E2	VIELQMALETL	72	11						6529
HPV33	E2	VIVCPTSI	192	8						6530
HPV33	E2	VQEKILD	11	8						6531
HPV33	E2	VQEKILDLYEA	11	11						6532
HPV33	E2	VQISTGFM	344	8						6533
HPV33	E2	VQISTGFMT	344	9						6534
HPV33	E2	VQISTGFMTL	344	10						6535
HPV33	E2	VQYDNDKKNT	119	10						6536
HPV33	E2	VQYDNDKKNTM	119	11						6537
HPV33	E2	VTEQQQM	326	8						6538
HPV33	E2	VTEQQQMFL	326	10						6539
HPV33	E2	VTFTVTEQQQM	323	11						6540
HPV33	E2	VTGKVDYI	148	8						6541
HPV33	E2	VTGKVDYIGM	148	10						6542
HPV33	E2	VVPSLLASKT	58	10						6543
HPV33	E2	WTLOQTSL	92	8						6544
HPV33	E2	WTLOQTSLV	92	10						6545
HPV33	E2	YIHNCVKV	159	8						6546
HPV33	E2	YIIEEDTCT	138	9						6547

Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E2	YIIEEDTCTM	138	10						6548
HPV33	E2	YIIEEDTCTMV	138	11						6549
HPV33	E2	YTAKQMGFSHL	44	11						6550
HPV33	E2	YTNWGEIYI	131	9						6551
HPV33	E2	YTNWGEIYII	131	10						6552
HPV33	E5	CINFHAQHMT	63	9						6553
HPV33	E5	CINFHAQHMT	63	10						6554
HPV33	E5	CLSLLLRPL	14	9						6555
HPV33	E5	CLSLLLRPLI	14	10						6556
HPV33	E5	CLSLLLRPLIL	14	11						6557
HPV33	E5	FILFLCLSL	9	9						6558
HPV33	E5	FILFLCLSL	9	10						6559
HPV33	E5	FILFLCLSL	9	11						6560
HPV33	E5	FLCLSL	12	8						6561
HPV33	E5	FLCLSL	12	11						6562
HPV33	E5	FLCLSL	12	11						6563
HPV33	E5	FLCLSL	12	11						6564
HPV33	E5	FVFLCFI	56	9						6565
HPV33	E5	FVFLCFI	3	8						6566
HPV33	E5	FVFLCFI	3	9						6567
HPV33	E5	FVFLCFI	3	11						6568
HPV33	E5	FVFLCFI	42	8						6569
HPV33	E5	FVFLCFI	5	9						6570
HPV33	E5	FVFLCFI	5	11						6571
HPV33	E5	ILFLCLSL	10	8						6572
HPV33	E5	ILFLCLSL	10	9						6573
HPV33	E5	ILFLCLSL	10	10						6574
HPV33	E5	ILSISTYA	23	8						6575
HPV33	E5	ILSISTYA	23	10						6576
HPV33	E5	ILSISTYA	23	11						6577
HPV33	E5	ILSISTYA	23	11						6578
HPV33	E5	KIFFCYLL	48	8						6579
HPV33	E5	KIFFCYLL	48	10						6580
HPV33	E5	LILSISTYA	22	9						6581
HPV33	E5	LILSISTYA	22	11						6582
HPV33	E5	LILSISTYA	22	11						6583
HPV33	E5	LLFLYLP	54	8						6584
HPV33	E5	LLFLYLP	54	9						6585
HPV33	E5	LLFLYLP	54	11						6586
HPV33	E5	LLFLYLP	54	11						6587
HPV33	E5	LLFLYLP	17	8						6588
HPV33	E5	LLFLYLP	17	10						6589
HPV33	E5	LLFLYLP	37	11						6590
HPV33	E5	LLFLYLP	18	9						6591
HPV33	E5	LLFLYLP	18	11						6592
HPV33	E5	LLFLYLP	32	8						6593
HPV33	E5	LLFLYLP	32	10						6594
HPV33	E5	LLFLYLP	32	10						6595
HPV33	E5	LLFLYLP	38	10						6596
HPV33	E5	LLFLYLP	35	9						6597
HPV33	E5	LLFLYLP	33	9						6598
HPV33	E5	LLFLYLP	33	11						6599

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E5	MIFVFLCFI	1	10						6594
HPV33	E5	MIFVFLCFIL	1	11						6595
HPV33	E5	MMCINFHA	61	8						6596
HPV33	E5	MMCINFHAQHM	61	11						6597
HPV33	E5	PLILSIST	21	8						6598
HPV33	E5	PLILSISTYA	21	10						6599
HPV33	E5	PLKIFFCYL	46	9						6600
HPV33	E5	PLKIFFCYLL	46	10						6601
HPV33	E5	PMMCINFHA	60	9						6602
HPV33	E5	SISTYAWL	25	8						6603
HPV33	E5	SISTYAWLL	25	9						6604
HPV33	E5	SISTYAWLLV	25	10						6605
HPV33	E5	SISTYAWLLVL	25	11						6606
HPV33	E5	SLLLRPLI	16	8						6607
HPV33	E5	SLLLRPLIL	16	9						6608
HPV33	E5	SLLLRPLISL	16	11						6609
HPV33	E5	STYAWLLV	27	8						6610
HPV33	E5	STYAWLLVL	27	9						6611
HPV33	E5	STYAWLLVLV	27	10						6612
HPV33	E5	STYAWLLVLVL	27	11						6613
HPV33	E5	VLCFILFL	6	8						6614
HPV33	E5	VLCFILFLCL	6	10						6615
HPV33	E5	VLLWVVF	36	8						6616
HPV33	E5	VLVLLLV	34	8						6617
HPV33	E5	VLVLLWVVF	34	10						6618
HPV33	E5	WLLVLVLL	31	8						6619
HPV33	E5	WLLVLVLLL	31	9						6620
HPV33	E5	WLLVLVLLLV	31	11						6621
HPV33	E5	WVFGSPL	40	8						6622
HPV33	E5	WVFGSPLKI	40	10						6623
HPV33	E5	YAWLLVLV	29	8						6624
HPV33	E5	YAWLLVLVL	29	9						6625
HPV33	E5	YAWLLVLVLL	29	10						6626
HPV33	E5	YAWLLVLVLLL	29	11						6627
HPV33	E5	YLLFLYLP	53	9						6628
HPV33	E5	YLLFLYLPMM	53	10						6629
HPV33	E5	YLPMMCINFHA	58	11						6630
HPV33	E6	AACWRSRRRET	137	11						6631
HPV33	E6	ALETTHNI	18	9						6632
HPV33	E6	ALETTHNIEL	18	11						6633
HPV33	E6	CIICORPL	103	8						6634
HPV33	E6	CLRFLSKI	66	8						6635
HPV33	E6	CQALETTI	16	8						6636
HPV33	E6	CQALETTHINI	16	11						6637
HPV33	E6	CVECKKPL	30	8						6638
HPV33	E6	DLCQALET	14	8						6639

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E6	DLQALETT	14	9						6640
HPV33	E6	DLQALETTI	14	10						6641
HPV33	E6	DLNKRFGNI	120	9						6642
HPV33	E6	DTEKPRT	4	8						6643
HPV33	E6	DTEKPRTL	4	9						6644
HPV33	E6	EILRCII	98	8						6645
HPV33	E6	ELQCVECKKPL	27	11						6646
HPV33	E6	EQTVKKPL	89	8						6647
HPV33	E6	EQTVKKPLNEI	89	11						6648
HPV33	E6	ETIHNIEL	20	9						6649
HPV33	E6	EYDFAFA	41	8						6650
HPV33	E6	EYDFAFADL	41	10						6651
HPV33	E6	EYDFAFADLT	41	11						6652
HPV33	E6	FAFADLT	45	8						6653
HPV33	E6	FAFADLT	45	9						6654
HPV33	E6	FADTLTV	45	2						6655
HPV33	E6	FQDTEKPRT	2	10						6656
HPV33	E6	FQDTEKPRTL	2	11						6657
HPV33	E6	GICKLCLRL	61	10						6658
HPV33	E6	HVDLNKRFGNI	118	11						6659
HPV33	E6	KLCRLFLSKI	64	10						6660
HPV33	E6	LIRCIQRP	100	11						6661
HPV33	E6	LQCVECKKPL	28	10						6662
HPV33	E6	LQSEVYDFA	37	10						6663
HPV33	E6	NISGRWAGRCA	127	11						6664
HPV33	E6	NTLEQTVKKPL	86	11						6665
HPV33	E6	PLCPQEKRRHV	109	11						6666
HPV33	E6	PLNEILIRCI	95	10						6667
HPV33	E6	PLNEILIRCI	95	11						6668
HPV33	E6	PLQSEVYDFA	36	11						6669
HPV33	E6	PQEKRRHV	112	8						6670
HPV33	E6	PQEKRRHVDL	112	10						6671
HPV33	E6	QALETTIHNI	17	10						6672
HPV33	E6	QTVKKPLNEI	90	10						6673
HPV33	E6	QTVKKPLNEIL	90	11						6674
HPV33	E6	RTLHDLCOA	10	9						6675
HPV33	E6	RTLHDLCOAL	10	10						6676
HPV33	E6	SVYGNLTLEQT	82	10						6677
HPV33	E6	SVYGNLTLEQTV	82	11						6678
HPV33	E6	TIHNIELQCV	22	10						6679
HPV33	E6	TLEQTVKKPL	87	10						6680
HPV33	E6	TLHDLCOA	11	8						6681
HPV33	E6	TLHDLCOAL	11	9						6682
HPV33	E6	TLHDLCOALET	11	11						6683
HPV33	E6	TTIHNIEL	21	8						6684
HPV33	E6	TTIHNIELQCV	21	11						6685
HPV33	E6	TVKKPLNEI	91	9						6685

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E6	TVKKPLNEIL	91	10						6686
HPV33	E6	TVKKPLNEILI	91	11						6687
HPV33	E6	VVYREGNPFGI	52	11						6688
HPV33	E7	AQPATADYYI	45	10						6689
HPV33	E7	AQPATADYYIV	45	11						6690
HPV33	E7	ATADYYIV	48	8						6691
HPV33	E7	ATADYYIVT	48	9						6692
HPV33	E7	CVNSTASDL	68	9						6693
HPV33	E7	CVNSTASDLRT	68	11						6694
HPV33	E7	DLRTIQQL	75	8						6695
HPV33	E7	DLRTIQQLL	75	9						6696
HPV33	E7	DLRTIQQLLM	75	10						6697
HPV33	E7	DLYCYEQL	21	8	0.0001					6698
HPV33	E7	DLYPEPTDL	14	9						6699
HPV33	E7	GLDRPDGQA	37	9						6700
HPV33	E7	GQAQPATA	43	8						6701
HPV33	E7	GTNVNVCPT	85	9						6702
HPV33	E7	GTNVNVCPTCA	85	11						6703
HPV33	E7	HTCNTTVRL	59	9						6704
HPV33	E7	HTCNTTVRLCV	59	11						6705
HPV33	E7	IQQLMGT	79	8						6706
HPV33	E7	IQQLMGTIV	79	9						6707
HPV33	E7	IQQLMGTVNI	79	11						6708
HPV33	E7	IVTCCHTCNT	54	10						6709
HPV33	E7	IVTCCHTCNTT	54	11						6710
HPV33	E7	LLMGTVNI	82	8						6711
HPV33	E7	LLMGTVNIV	82	9						6712
HPV33	E7	LLMGTVNIV	83	8						6713
HPV33	E7	LMGTVNIVCPT	83	11						6714
HPV33	E7	NIVCPTCA	88	8						6715
HPV33	E7	NTTVRLCV	62	8						6716
HPV33	E7	NTTVRLCVNST	62	11						6717
HPV33	E7	PATADYYI	47	8						6718
HPV33	E7	PATADYYIV	47	9						6719
HPV33	E7	PATADYYIVT	47	10						6720
HPV33	E7	PTDLYCYEQL	19	10						6721
HPV33	E7	PTLKEYVL	6	8						6722
HPV33	E7	PTLKEYVLDL	6	10						6723
HPV33	E7	QAQPATADYYI	44	11						6724
HPV33	E7	QLLMGTVNI	81	9						6725
HPV33	E7	QLLMGTVNIV	81	10						6726
HPV33	E7	QLLMGTIV	80	8						6727
HPV33	E7	QQLLMGTVNI	80	10						6728
HPV33	E7	QQLLMGTVNIV	80	11						6729
HPV33	E7	RLCVNSTA	66	8						6730
HPV33	E7	RLCVNSTASDL	66	11						6731

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	E7	RTIQQLLM	77	8						6732
HPV33	E7	RTIQQLLMGT	77	10						6733
HPV33	E7	RTIQQLLMGTV	77	11						6734
HPV33	E7	STASDLRT	71	8						6735
HPV33	E7	STASDLRTI	71	9						6736
HPV33	E7	TADYYIVT	49	8						6737
HPV33	E7	TASDLRTI	72	8						6738
HPV33	E7	TASDLRTIQQL	72	11						6739
HPV33	E7	TIQQLLMGT	78	9						6740
HPV33	E7	TIQQLLMGTV	78	10						6741
HPV33	E7	TLKEYVLDL	7	9						6742
HPV33	E7	TTVRLCVNST	63	10						6743
HPV33	E7	TTVRLCVNSTA	63	11						6744
HPV33	E7	TVNIVCPT	86	8						6745
HPV33	E7	TVNIVCPTCA	86	10						6746
HPV33	E7	TVRLCVNST	64	9						6747
HPV33	E7	TVRLCVNSTA	64	10						6748
HPV33	E7	VLDLYPEPT	12	9						6749
HPV33	E7	VLDLYPEPTDL	12	11						6750
HPV33	E7	VTCCHTGN	55	9						6751
HPV33	E7	VTCCHTGN	55	10						6752
HPV33	E7	VTCCHTGN	55	11						6753
HPV33	E7	VTCCHTGN	55	11						6754
HPV33	E7	VIVTCCHT	53	8						6755
HPV33	E7	VIVTCCHTGN	53	11						6756
HPV33	E7	VVLDLYPEPT	11	10						6757
HPV33	L1	AAPANDCPPL	179	10						6758
HPV33	L1	AAPTSTR	482	8						6759
HPV33	L1	AAPTSTR	482	11						6760
HPV33	L1	AAPTSTR	482	11						6761
HPV33	L1	AITCQKTV	424	8						6762
HPV33	L1	AQGHNNGI	316	8						6763
HPV33	L1	ATVYLPV	9	8						6764
HPV33	L1	ATVYLPV	9	10						6765
HPV33	L1	AVGHPYFSI	44	9						6766
HPV33	L1	AVPDDLVI	270	8						6767
HPV33	L1	CLLGCKPPT	158	9						6768
HPV33	L1	CLSMYKQT	147	9						6769
HPV33	L1	CLSMYKQTQL	147	11						6770
HPV33	L1	CMDFKTLQA	207	9						6771
HPV33	L1	CTQVTS	345	9						6772
HPV33	L1	CTQVTS	345	9						6773
HPV33	L1	DILEDWQFGL	396	10						6774
HPV33	L1	DILEDWQFGLT	396	11						6775
HPV33	L1	DLKEKFS	449	8						6776
HPV33	L1	DLKEKFS	449	10						6777
HPV33	L1	DLKEKFS	449	10						6778
HPV33	L1	DLQVFQL	370	8						6779
HPV33	L1	DLQVFQLCKV	370	11						6780
HPV33	L1	DLYIKSGT	274	9						6781

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L1	DLYIKSGTIT	274	10						6778
HPV33	L1	DLYIKSGTTA	274	11						6779
HPV33	L1	DMVDITFGCM	199	10						6780
HPV33	L1	DQFPLGRKFL	459	10						6781
HPV33	L1	DQFPLGRKFL	459	11						6782
HPV33	L1	DTGFCMDFKT	202	11						6783
HPV33	L1	DTQRLVWA	95	8						6784
HPV33	L1	DTQRLVWACV	95	10						6785
HPV33	L1	DTSFYNPDT	88	9						6786
HPV33	L1	DTTRSTNM	335	8						6787
HPV33	L1	DTTRSTNMT	335	9						6788
HPV33	L1	DTTRSTNMTL	335	10						6789
HPV33	L1	DTYRFVTSQA	415	10						6790
HPV33	L1	DTYRFVTSQAI	415	11						6791
HPV33	L1	DVPIDICGST	219	10						6792
HPV33	L1	EATVYLPVP	8	9						6793
HPV33	L1	EATVYLPVPV	8	11						6794
HPV33	L1	EAVPDDLYI	269	9						6795
HPV33	L1	EIGRGQPL	107	8						6796
HPV33	L1	EIGRGQPLGV	107	10						6797
HPV33	L1	EVDLKEKFS	447	10						6798
HPV33	L1	EVMTYIHA	385	8						6799
HPV33	L1	EVMTYIHAM	385	9						6800
HPV33	L1	FLQAGLKA	467	9						6801
HPV33	L1	FLRREQMFV	249	9						6802
HPV33	L1	FQLCKVTL	375	8						6803
HPV33	L1	FQLCKVTLT	375	9						6804
HPV33	L1	FQLCKVTLTA	375	10						6805
HPV33	L1	FVFQLCKV	373	8						6806
HPV33	L1	FVFQLCKVT	373	9						6807
HPV33	L1	FVFQLCKVTL	373	10						6808
HPV33	L1	FVFQLCKVTLT	373	11						6809
HPV33	L1	FVRHFENRA	256	9						6810
HPV33	L1	FVRHFENRAGT	256	11						6811
HPV33	L1	FVTSQAIT	419	8						6812
HPV33	L1	FVTVDIT	330	8						6813
HPV33	L1	FVTVDITRST	330	11						6814
HPV33	L1	GADNRECL	141	8						6815
HPV33	L1	GADNRECLSM	141	10						6816
HPV33	L1	GICWGNQV	322	8						6817
HPV33	L1	GICWGNQVFV	322	10						6818
HPV33	L1	GICWGNQVFVT	322	11						6819
HPV33	L1	GISHGPLL	117	8						6820
HPV33	L1	GLEIGRGQPL	105	10						6821
HPV33	L1	GLKAKPKL	472	8						6822
HPV33	L1	GLKAKPKLRA	472	11						6823

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L1	GLQYRVFRV	68	9						6824
HPV33	L1	GLQYRVFRVRL	68	11						6825
HPV33	L1	GLTPPSA	404	8						6826
HPV33	L1	GLTPPSASL	404	10						6827
HPV33	L1	GQPADNRECL	138	11						6828
HPV33	L1	GQPLGVGI	111	8						6829
HPV33	L1	GTLGEAVPDDL	265	11						6830
HPV33	L1	GTTASIQSSA	281	10						6831
HPV33	L1	GVACTNAA	173	8						6832
HPV33	L1	GVACTNAAPA	173	10						6833
HPV33	L1	GVGISGHP	115	9						6834
HPV33	L1	GVGISGHPLL	115	10						6835
HPV33	L1	HAMNPDL	391	8						6836
HPV33	L1	HVEYDLQFV	365	10						6837
HPV33	L1	IIEDGDMV	194	8						6838
HPV33	L1	IIEDGDMVDT	194	10						6839
HPV33	L1	ILEDWQFGL	397	9						6840
HPV33	L1	ILEDWQFGLT	397	10						6841
HPV33	L1	IQSSAFFPT	286	9						6842
HPV33	L1	KAKPKLKRA	474	9						6843
HPV33	L1	KAKPKLKRAA	474	10						6844
HPV33	L1	KLKRAAPT	478	8						6845
HPV33	L1	KLKRAAPTST	478	10						6846
HPV33	L1	KLLVPKVSGL	60	10						6847
HPV33	L1	KMTSEPYGDSL	236	11						6848
HPV33	L1	KQTQLCLL	153	8						6849
HPV33	L1	KTLQANKSDV	211	10						6850
HPV33	L1	KVSGLYRV	65	9						6851
HPV33	L1	KVTLTAEV	379	8						6852
HPV33	L1	KVTLTAEVMT	379	9						6853
HPV33	L1	KVTLTAEVMT	379	10						6854
HPV33	L1	KVSTDEYV	20	9						6855
HPV33	L1	LAVGHPYFSI	43	10						6856
HPV33	L1	LINTIHDGDM	190	11						6857
HPV33	L1	LLAVGHPYFSI	42	11						6858
HPV33	L1	LLGCKPPT	159	8						6859
HPV33	L1	LLNKFD	123	8						6860
HPV33	L1	LLNKFDDET	123	10						6861
HPV33	L1	LLQAGLKA	468	8						6862
HPV33	L1	LLVPKVSGL	61	9						6863
HPV33	L1	LQAGLKAKPKL	469	11						6864
HPV33	L1	LQANKSDV	213	8						6865
HPV33	L1	LQANKSDVPI	213	10						6866
HPV33	L1	LQDTYRFV	413	8						6867
HPV33	L1	LQDTYRFVT	413	9						6868
HPV33	L1	LQFVFLCKV	371	10						6869

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L1	LQVFVQLCKVT	371	11						6870
HPV33	L1	LQRAQGHNGI	313	11						6871
HPV33	L1	LQYRVFRV	69	8						6872
HPV33	L1	LQYRVFRVRL	69	10						6873
HPV33	L1	LTAEVMTYI	382	9						6874
HPV33	L1	LTAEVMTYIHA	382	11						6875
HPV33	L1	LTPPSASL	405	9						6876
HPV33	L1	LVPKVSGL	62	8						6877
HPV33	L1	LVWACVGL	99	8						6878
HPV33	L1	LVWACVGL	99	10						6879
HPV33	L1	MTLCTQVT	342	8						6880
HPV33	L1	MTSEPYGDSL	237	10						6881
HPV33	L1	MTYHAMNPDI	387	11						6882
HPV33	L1	MVDTGFGCM	200	9						6883
HPV33	L1	MVTESQL	299	8						6884
HPV33	L1	NAAPANDCPPL	178	11						6885
HPV33	L1	NAKKLLVPKV	57	10						6886
HPV33	L1	NMTLCTQV	341	8						6887
HPV33	L1	NMTLCTQVT	341	9						6888
HPV33	L1	NQVFVTVV	327	8						6889
HPV33	L1	NQVFVTVVDT	327	10						6890
HPV33	L1	NQVFVTVVDTT	327	11						6891
HPV33	L1	NTIEDGDM	192	9						6892
HPV33	L1	NTIEDGDMV	192	10						6893
HPV33	L1	PANDCPPL	181	8						6894
HPV33	L1	PANDCPPLEL	181	10						6895
HPV33	L1	PANDCPPLELI	181	11						6896
HPV33	L1	PIDICGST	221	8						6897
HPV33	L1	PLELINTI	187	8						6898
HPV33	L1	PLELINTII	187	9						6899
HPV33	L1	PLGKYTFWEV	439	10						6900
HPV33	L1	PLGRKFLL	462	8						6901
HPV33	L1	PLGRKFLLQA	462	10						6902
HPV33	L1	PLGVGISGHL	113	11						6903
HPV33	L1	PLLNKFDDT	122	9						6904
HPV33	L1	PLLNKFDDTET	122	11						6905
HPV33	L1	PTGEHWGKGV	165	10						6906
HPV33	L1	PTGEHWGKGV	165	11						6907
HPV33	L1	PTNAKKLL	55	8						6908
HPV33	L1	PTNAKKLLV	55	9						6909
HPV33	L1	PTPSGSMV	293	8						6910
HPV33	L1	PTPSGSMVT	293	9						6911
HPV33	L1	PTSTRSSA	484	9						6912
HPV33	L1	PVPVSKVV	15	8						6913
HPV33	L1	PVPVSKVVST	15	10						6914
HPV33	L1	PVSKVVST	17	8						6915

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV33	L1	QAGLKAKPKL	470	10						6916
HPV33	L1	QAITCQKT	423	8						6917
HPV33	L1	QAITCQKT	423	9						6918
HPV33	L1	QANKSDVPI	214	9						6919
HPV33	L1	QANKSDVPIDI	214	11						6920
HPV33	L1	QLCKVTLT	376	8						6921
HPV33	L1	QLCKVTLTA	376	9						6922
HPV33	L1	QLCKVTLTAEV	376	11						6923
HPV33	L1	QLCLLGCKPPT	156	11						6924
HPV33	L1	QLFNKPYWL	305	9						6925
HPV33	L1	QMFVRHFFNRA	254	11						6926
HPV33	L1	QVFVTVVDIT	328	9						6927
HPV33	L1	QVFVTVVDIT	328	10						6928
HPV33	L1	RAAPTSTRT	481	9						6929
HPV33	L1	RAGTLGEA	263	8						6930
HPV33	L1	RAGTLGEAV	263	9						6931
HPV33	L1	RAQGHNNGI	315	9						6932
HPV33	L1	RLVWACVGL	98	9						6933
HPV33	L1	RLVWACVGLEI	98	11						6934
HPV33	L1	RTSIYYA	30	8						6935
HPV33	L1	RTSSAKRKKV	488	10						6936
HPV33	L1	SADLDQFPL	455	9						6937
HPV33	L1	SAFFTPSGSM	289	11						6938
HPV33	L1	SASLQDTYRFV	410	11						6939
HPV33	L1	SIKNPTNA	51	8						6940
HPV33	L1	SIKNPTNAKKL	51	11						6941
HPV33	L1	SIQSSAFFPT	285	10						6942
HPV33	L1	SIYYAGSSRL	32	11						6943
HPV33	L1	SLFFFLRREQM	245	11						6944
HPV33	L1	SLQDTYRFV	412	9						6945
HPV33	L1	SLQDTYRFVT	412	10						6946
HPV33	L1	SMDYKQTQL	149	9						6947
HPV33	L1	SMDYKQTQLCL	149	11						6948
HPV33	L1	SMVTSESQ	298	9						6949
HPV33	L1	QAITCQKT	422	9						6950
HPV33	L1	QAITCQKT	422	10						6951
HPV33	L1	SQLFNKPYWL	304	10						6952
HPV33	L1	STCKYPDYL	227	9						6953
HPV33	L1	STCKYPDYLM	227	11						6954
HPV33	L1	STDEYVSRT	23	9						6955
HPV33	L1	STDEYVSRTSI	23	11						6956
HPV33	L1	STNMTLCT	339	8						6957
HPV33	L1	STNMTLCTQV	339	10						6958
HPV33	L1	STNMTLCTQVT	339	11						6959
HPV33	L1	SVWRPSEA	2	8						6960
HPV33	L1	SVWRPSEAT	2	9						6961

Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L1	SVWRPSEATV	2	10						6962
HPV33	L1	TAEVMTYI	383	8						6963
HPV33	L1	TAEVMTYIHA	383	10						6964
HPV33	L1	TAEVMTYIHAM	383	11						6965
HPV33	L1	TASIQSSA	283	8						6966
HPV33	L1	TIHEDGDM	193	8						6967
HPV33	L1	TIHEDGDMV	193	9						6968
HPV33	L1	TIHEDGDMVDT	193	11						6969
HPV33	L1	TLCTQVTSST	343	11						6970
HPV33	L1	TLGEAVPDDL	266	10						6971
HPV33	L1	TLQANKSDV	212	9						6972
HPV33	L1	TLQANKSDVPI	212	11						6973
HPV33	L1	TLTAEVMT	381	8						6974
HPV33	L1	TLTAEVMTYI	381	10						6975
HPV33	L1	TQRLVWACV	96	9						6976
HPV33	L1	TQRLVWACVGL	96	11						6977
HPV33	L1	TQVTSST	346	8						6978
HPV33	L1	TTASIQSSA	282	9						6979
HPV33	L1	TTRSTNMT	336	8						6980
HPV33	L1	TTRSTNMTL	336	9						6981
HPV33	L1	TTRSTNMTLCT	336	11						6982
HPV33	L1	TVPKEDPL	430	11						6983
HPV33	L1	TVVDTRST	332	9						6984
HPV33	L1	TVVDTRSTNM	332	11						6985
HPV33	L1	TVYLPVPV	10	9						6986
HPV33	L1	VACTNAAPA	174	9						6987
HPV33	L1	VMTYIHAM	386	8						6988
HPV33	L1	VTLTAEVMT	380	8						6989
HPV33	L1	VTLTAEVMTYI	380	9						6990
HPV33	L1	VTLTAEVMTYI	380	11						6991
HPV33	L1	VTSQAITCQKT	420	11						6992
HPV33	L1	VTVDTRST	331	10						6993
HPV33	L1	VVDTRST	333	8						6994
HPV33	L1	VVDTRSTNM	333	10						6995
HPV33	L1	VVDTRSTNMT	333	11						6996
HPV33	L1	VVSTDEYV	21	8						6997
HPV33	L1	VVSTDEYVSR	21	11						6998
HPV33	L1	WACVGL	101	8						6999
HPV33	L1	WQFGLTPPSA	401	11						7000
HPV33	L1	YAGSSRL	36	8						7001
HPV33	L1	YAGSSRLA	36	9						7002
HPV33	L1	YAGSSRLAV	36	10						7003
HPV33	L1	YIHAMNPDI	389	9						7004
HPV33	L1	YIHAMNPDI	389	10						7005
HPV33	L1	YIKSGT	276	8						7006
HPV33	L1	YIKSGTTA	276	9						7007

Q123456789012345678901234567890
 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L1	YIKSGTTASI	276	11						7008
HPV33	L1	YIRHVEEYDL	362	10						7009
HPV33	L1	YLPVPVSKV	12	10						7010
HPV33	L1	YLPVPVSKVV	12	11						7011
HPV33	L1	YTFWEVDL	443	8						7012
HPV33	L1	YVSRYSIYYA	27	11						7013
HPV33	L2	AAIPLOPI	81	8						7014
HPV33	L2	AINVSSV	140	8						7015
HPV33	L2	AIPLQIRPPV	82	11						7016
HPV33	L2	AITSRRHT	291	8						7017
HPV33	L2	AITSRRHTV	291	9						7018
HPV33	L2	ALHRPAIT	286	8						7019
HPV33	L2	ATGTCPPDV	23	9						7020
HPV33	L2	ATGTCPPDVI	23	10						7021
HPV33	L2	ATLTKRSGKQI	308	11						7022
HPV33	L2	ATQLYQTCKA	14	10						7023
HPV33	L2	ATQLYQICKAT	14	11						7024
HPV33	L2	ATTRTSNV	385	8						7025
HPV33	L2	ATTRTSNVI	385	10						7026
HPV33	L2	DIALHRPA	283	9						7027
HPV33	L2	DIALHRPAI	283	10						7028
HPV33	L2	DIALHRPAIT	283	11						7029
HPV33	L2	DIPSPLFPT	409	9						7030
HPV33	L2	DISPAPDPDEL	272	11						7031
HPV33	L2	DLSPIVPL	327	8						7032
HPV33	L2	DLSPIVPLDHT	327	11						7033
HPV33	L2	DQILKYGSL	42	9						7034
HPV33	L2	DQILKYGSLGV	42	11						7035
HPV33	L2	DTIVVDGA	431	8						7036
HPV33	L2	DTIVVDGADFV	431	11						7037
HPV33	L2	DTLQFQHSDI	264	10						7038
HPV33	L2	DTPVMSGPDI	401	10						7039
HPV33	L2	DTSTSSYSI	350	9						7040
HPV33	L2	DTTPAIVN	136	9						7041
HPV33	L2	DTVGPLDSSI	95	10						7042
HPV33	L2	DTVGPLDSSIV	95	11						7043
HPV33	L2	DVDNVHTPM	369	9						7044
HPV33	L2	DVIPKVEGST	30	10						7045
HPV33	L2	DVIPKVEGSTI	30	11						7046
HPV33	L2	DVTTADT	130	8						7047
HPV33	L2	DVTTADTT	130	9						7048
HPV33	L2	DVTTADTTTPA	130	11						7049
HPV33	L2	DVYADDVDNV	364	10						7050
HPV33	L2	EAGAPAPSI	115	9						7051
HPV33	L2	EAGAPAPSIPT	115	11						7052
HPV33	L2	ELQPLHDT	344	8						7053

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A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L2	ELQPLHDTST	344	10						7054
HPV33	L2	EQYELQPL	341	8						7055
HPV33	L2	EQYELQPLHDT	341	11						7056
HPV33	L2	ETSFIEAGA	110	9						7057
HPV33	L2	ETSFIEAGAPA	110	11						7058
HPV33	L2	FATRTTSNV	384	9						7059
HPV33	L2	FATRTTSNVSI	384	11						7060
HPV33	L2	FIEAGAPA	113	8						7061
HPV33	L2	FIEAGAPAPSI	113	11						7062
HPV33	L2	FIFSSPTV	181	8						7063
HPV33	L2	FIFSSPTVST	181	10						7064
HPV33	L2	FLDIALHRPA	281	11						7065
HPV33	L2	FLTSPHKL	242	8						7066
HPV33	L2	FLTSPHKL	242	9						7067
HPV33	L2	FLTSPHKLIT	242	10						7068
HPV33	L2	FQHSIDSPA	268	9						7069
HPV33	L2	FTDVRVAA	460	8						7070
HPV33	L2	FTEPSVLHPPA	163	11						7071
HPV33	L2	FVLHPSYFI	440	9						7072
HPV33	L2	FVLHPSYFIL	440	10						7073
HPV33	L2	FVVSTDSSNV	201	10						7074
HPV33	L2	FVVSTDSSNVT	201	11						7075
HPV33	L2	GAPAPSIPT	117	9						7076
HPV33	L2	GARIHYQQDL	319	10						7077
HPV33	L2	GLYDVYADDV	361	10						7078
HPV33	L2	GLYSRNTQV	226	10						7079
HPV33	L2	GQKATLKT	305	8						7080
HPV33	L2	GTCPPDVI	25	8						7081
HPV33	L2	GTCPPDVIIPKV	25	11						7082
HPV33	L2	GTDPPTAA	75	8						7083
HPV33	L2	GTDPPTAAI	75	9						7084
HPV33	L2	GTDPPTAAIPL	75	11						7085
HPV33	L2	GTGSGGGRT	60	10						7086
HPV33	L2	GVFFGGLGI	51	9						7087
HPV33	L2	GVFFGGLGIGT	51	11						7088
HPV33	L2	HLNPTFTPSV	158	11						7089
HPV33	L2	HTPMQHSYST	374	10						7090
HPV33	L2	HTVPNEQVEL	336	10						7091
HPV33	L2	HTVFRSRV	297	8						7092
HPV33	L2	IADQILKYGSL	40	11						7093
HPV33	L2	IALHRPAI	285	8						7094
HPV33	L2	IALHRPAIT	285	9						7095
HPV33	L2	IILHRPA	284	8						7096
HPV33	L2	IILHRPAI	284	9						7097
HPV33	L2	IILHRPAIT	284	10						7098
HPV33	L2	ILKYGSLGV	44	9						7099

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Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV33	L2	IQTISTHL	152	8						7100
HPV33	L2	IQTISTHLNPT	152	11						7101
HPV33	L2	ITSRRHTV	292	8						7102
HPV33	L2	IVPLDHTV	331	8						7103
HPV33	L2	IVSLIEET	104	8						7104
HPV33	L2	IVSLIEETSH	104	11						7105
HPV33	L2	IVVDGADFV	433	9						7106
HPV33	L2	IVVDGADFVL	433	10						7107
HPV33	L2	KATGTCPPDV	22	10						7108
HPV33	L2	KATGTCPPDVI	22	11						7109
HPV33	L2	KLITYDNPA	248	9						7110
HPV33	L2	KTRSGKQI	311	8						7111
HPV33	L2	KTRSGKQIGA	311	10						7112
HPV33	L2	KVEGSTIA	34	8						7113
HPV33	L2	KVEGSTIADQI	34	11						7114
HPV33	L2	KVVDPAFL	236	8						7115
HPV33	L2	KVVDPAFLT	236	9						7116
HPV33	L2	LIEETSH	107	8						7117
HPV33	L2	LIEETSFIEA	107	10						7118
HPV33	L2	LITYDNPA	249	8						7119
HPV33	L2	LQFHSDI	266	8						7120
HPV33	L2	LQFHSDISPA	266	11						7121
HPV33	L2	LQIRPPV	85	8						7122
HPV33	L2	LQIRPPVT	85	9						7123
HPV33	L2	LQIRPPVTV	85	10						7124
HPV33	L2	LQPLHDTST	345	9						7125
HPV33	L2	LTSPHKLI	243	8						7126
HPV33	L2	LTSPHKLIIT	243	9						7127
HPV33	L2	MQHSYSTFA	377	9						7128
HPV33	L2	MQHSYSTFEAT	377	10						7129
HPV33	L2	MQHSYSTFEATT	377	11						7130
HPV33	L2	NIPMDTFV	195	8						7131
HPV33	L2	NIPMDTFVV	195	9						7132
HPV33	L2	NIPMDTFVVST	195	11						7133
HPV33	L2	NTGFDTPV	397	8						7134
HPV33	L2	NTGFDTPVM	397	9						7135
HPV33	L2	NTQQVKVV	231	8						7136
HPV33	L2	NTQQVKVVDPA	231	11						7137
HPV33	L2	NVSIPLNT	391	8						7138
HPV33	L2	NVSSVGESSI	143	10						7139
HPV33	L2	NVTSSTPI	209	8						7140
HPV33	L2	PAEASGHFI	174	9						7141
HPV33	L2	PAFESFDPEDT	255	11						7142
HPV33	L2	PAFLTSPHKL	240	10						7143
HPV33	L2	PAFLTSPHKLI	240	11						7144
HPV33	L2	PAINVSSV	139	9						7145

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L2	PAITRRHT	290	9						7146
HPV33	L2	PAITRRHTV	290	10						7147
HPV33	L2	PAPAEASGHFI	172	11						7148
HPV33	L2	PAPDPDFL	275	8						7149
HPV33	L2	PAPDPDFLDI	275	10						7150
HPV33	L2	PAPDPDFLDII	275	11						7151
HPV33	L2	PIGTDPTT	73	8						7152
HPV33	L2	PIGTDPTA	73	9						7153
HPV33	L2	PIGTDPTAA	73	10						7154
HPV33	L2	PIGTDPTAAI	73	11						7155
HPV33	L2	PIGSRPV	215	8						7156
HPV33	L2	PIGSRPVA	215	9						7157
HPV33	L2	PIGSRPVARL	215	11						7158
HPV33	L2	PIRPPVT	87	8						7159
HPV33	L2	PIRPPVTVD	87	10						7160
HPV33	L2	PIRPPVTVDTV	87	11						7161
HPV33	L2	PISPPFFD	423	10						7162
HPV33	L2	PISPPFFDTI	423	11						7163
HPV33	L2	PVPLDHT	330	8						7164
HPV33	L2	PVPLDHTV	330	9						7165
HPV33	L2	PLDSSIVSL	99	9						7166
HPV33	L2	PLDSSIVSLI	99	10						7167
HPV33	L2	PLFTSSPFV	413	10						7168
HPV33	L2	PLNTGFD	395	8						7169
HPV33	L2	PLNTGFDTPV	395	10						7170
HPV33	L2	PLNTGFDTPVM	395	11						7171
HPV33	L2	PLQIRPPV	84	9						7172
HPV33	L2	PLQIRPPVT	84	10						7173
HPV33	L2	PLQIRPPVTV	84	11						7174
HPV33	L2	PMDTFVVT	197	9						7175
HPV33	L2	PMQHSYST	376	8						7176
HPV33	L2	PMQHSYSTFA	376	10						7177
HPV33	L2	PMQHSYSTFAT	376	11						7178
HPV33	L2	PTAAIPLQPI	79	10						7179
HPV33	L2	PTFTEPSV	161	8						7180
HPV33	L2	PTFTEPSVL	161	9						7181
HPV33	L2	PTPSGFDV	124	8						7182
HPV33	L2	PTPSGFDVT	124	9						7183
HPV33	L2	PTPSGFDVTT	124	10						7184
HPV33	L2	PTSSPFVPI	416	9						7185
HPV33	L2	PTVSTQSYENI	186	11						7186
HPV33	L2	PVMMSGPDI	403	8						7187
HPV33	L2	PVTVDTVGPL	91	10						7188
HPV33	L2	QILKYGSL	43	8						7189
HPV33	L2	QILKYGSLGV	43	10						7190
HPV33	L2	QLYQTCKA	16	8						7191

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV33	L2	QLYQTCKAT	16	9						7192
HPV33	L2	QLYQTCKATGT	16	11						7193
HPV33	L2	QQVKVVDPA	233	9						7194
HPV33	L2	QQVKVVDPAFL	233	11						7195
HPV33	L2	QTCATGT	19	8						7196
HPV33	L2	QTISTHLNPT	153	10						7197
HPV33	L2	QVKVVDPA	234	8						7198
HPV33	L2	QVKVVDPAFL	234	10						7199
HPV33	L2	QVKVVDPAFLT	234	11						7200
HPV33	L2	RASATQLYQT	11	10						7201
HPV33	L2	RIHYYQDL	321	8						7202
HPV33	L2	RIHYYQDLSP	321	11						7203
HPV33	L2	RLGLYSRNT	224	9						7204
HPV33	L2	RTGYVPIGT	68	9						7205
HPV33	L2	RTSNVSIPL	388	9						7206
HPV33	L2	RTSNVSIPLNT	388	11						7207
HPV33	L2	RVGQKATL	303	8						7208
HPV33	L2	RVGQKATLKT	303	10						7209
HPV33	L2	SADTTPAI	134	8						7210
HPV33	L2	SADTTPAII	134	9						7211
HPV33	L2	SADTTPAIINV	134	11						7212
HPV33	L2	SATQLYQT	13	8						7213
HPV33	L2	SATQLYQTCKA	13	11						7214
HPV33	L2	SINDGLYDV	357	9						7215
HPV33	L2	SINDGLYDVYA	357	11						7216
HPV33	L2	SIPLNTGFDT	393	10						7217
HPV33	L2	SIPTPSGFDV	122	10						7218
HPV33	L2	SIPTPSGFDVT	122	11						7219
HPV33	L2	SIQTISTHL	151	9						7220
HPV33	L2	SIVSLIET	103	9						7221
HPV33	L2	SLGVFFGGL	49	9						7222
HPV33	L2	SLGVFFGGLGI	49	11						7223
HPV33	L2	SLIETSFI	106	9						7224
HPV33	L2	SLIETSFIEA	106	11						7225
HPV33	L2	STDSSNVT	204	8						7226
HPV33	L2	STDSSNVTSS	204	11						7227
HPV33	L2	STFATTRT	382	8						7228
HPV33	L2	STFATTRTSNV	382	11						7229
HPV33	L2	STHLNPTFT	156	9						7230
HPV33	L2	STIADQIL	38	8						7231
HPV33	L2	STPIGSRPV	213	10						7232
HPV33	L2	STPIGSRPVA	213	11						7233
HPV33	L2	STQSYENI	189	8						7234
HPV33	L2	STQSYENIPM	189	10						7235
HPV33	L2	STRKRASA	6	9						7236
HPV33	L2	STRKRASAT	6	10						7237

Table VIII

A02 Supermotif Peptides with Binding Information

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Table VIII

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV33	L2	VVSTDSSNV	202	9						7284
HPV33	L2	VVSTDSSNV	202	10						7285
HPV33	L2	YADDVDNV	366	8						7286
HPV33	L2	YADDVDNVHT	366	10						7287
HPV33	L2	YQDLSPIV	325	8						7288
HPV33	L2	YQDLSPIVPL	325	10						7289
HPV33	L2	YQTCATGT	18	9						7290
HPV33	L2	YVPIGTDPT	71	10						7291
HPV33	L2	YVPIGTDPTA	71	11						7292
HPV33	L2	AAFLKSNCA	382	11						7293
HPV45	E1	AAETQVTV	144	8						7294
HPV45	E1	AAETQVTVNT	144	10						7295
HPV45	E1	AAFLKSNCA	383	10						7296
HPV45	E1	AALYWYRT	310	8						7297
HPV45	E1	AALYWYRTGI	310	10						7298
HPV45	E1	AAMLAVFKDI	198	10						7299
HPV45	E1	AIFGVNPT	232	8						7300
HPV45	E1	AIFGVNPTV	232	9						7301
HPV45	E1	AIFGVNPTVA	232	10	0.0210					7302
HPV45	E1	ALDGNPIS	532	9						7303
HPV45	E1	ALPHAQEV	68	8						7304
HPV45	E1	ALKEFLKGT	452	9						7305
HPV45	E1	ALYWYRTGI	311	9	0.0032					7306
HPV45	E1	AMLAVFKDI	199	9						7307
HPV45	E1	AMLDATHT	512	9						7308
HPV45	E1	AQALFHAEV	66	10						7309
HPV45	E1	AQEVQND	72	8						7310
HPV45	E1	AQEVQNDAQV	72	10						7311
HPV45	E1	AQEVQNDAQVL	72	11						7312
HPV45	E1	AQKROMNM	408	8						7313
HPV45	E1	AQLADCSNA	373	10						7314
HPV45	E1	AQLADCSNAA	373	11						7315
HPV45	E1	ATDTGSDM	40	8						7316
HPV45	E1	ATDTGSDMV	40	9						7317
HPV45	E1	ATLYAHIQCL	251	10						7318
HPV45	E1	AVFKDIYGL	202	9						7319
HPV45	E1	AVMCRHYKRA	399	10						7320
HPV45	E1	CAVMCRHYKRA	398	11						7321
HPV45	E1	CILLYGPA	465	8						7322
HPV45	E1	CILLYGPANT	465	10						7323
HPV45	E1	CLDCKWGV	259	8						7324
HPV45	E1	CLDCKWGV	259	9						7325
HPV45	E1	CLDCKWGV	259	10	0.0002					7326
HPV45	E1	CLDCKWGV	259	11						7327
HPV45	E1	CMLIEPKL	297	9						7328
HPV45	E1	COAKYLKDC	390	10						7329

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E1	CQAKYLKCAV	390	11						7330
HPV45	E1	CTDWVMAI	226	8						7331
HPV45	E1	CTDWVMAIFGV	226	11						7332
HPV45	E1	CVTGQNTPL	634	10						7333
HPV45	E1	DADTEGIPFGT	621	11						7334
HPV45	E1	DAQVLHLL	78	8						7335
HPV45	E1	DATHTCWT	516	8						7336
HPV45	E1	DIYGLSFT	206	8						7337
HPV45	E1	DIYGLSFTDL	206	10						7338
HPV45	E1	DIYGLSFTDLV	206	11						7339
HPV45	E1	DLHEDDEDA	614	9						7340
HPV45	E1	DLHEDDEADT	614	11						7341
HPV45	E1	DLSDMVQWA	349	9						7342
HPV45	E1	DLSPRLQEI	108	9						7343
HPV45	E1	DLSPRLQEISL	108	11						7344
HPV45	E1	DLTDESDM	361	8						7345
HPV45	E1	DLTDESMA	361	9						7346
HPV45	E1	DLVRNFKSDKT	214	11						7347
HPV45	E1	DMAFYAQL	367	9						7348
HPV45	E1	DMAFYAQLA	367	10						7349
HPV45	E1	DMVDFIDT	46	8						7350
HPV45	E1	DMVDFIDTQL	46	10						7351
HPV45	E1	DMVQWAFDNDL	352	11						7352
HPV45	E1	DTDLSPRL	106	8						7353
HPV45	E1	DTDLSPRLQEI	106	11						7354
HPV45	E1	DTEGIPFGT	623	9						7355
HPV45	E1	DTGSDMVDFI	42	10						7356
HPV45	E1	DTKVAMLLDDA	508	10						7357
HPV45	E1	DTKVAMLLDDAT	508	11						7358
HPV45	E1	DTPEWIQL	328	9						7359
HPV45	E1	DTPEWIQLRT	328	10						7360
HPV45	E1	DTPEWIQLRTI	328	11						7361
HPV45	E1	DTQLSICEQA	52	10						7362
HPV45	E1	DVISDDEDET	30	10						7363
HPV45	E1	DVISDDEDETA	30	11						7364
HPV45	E1	EEAETQVT	143	8						7365
HPV45	E1	EEAETQVTV	143	9						7366
HPV45	E1	EEAETQVTVNT	143	11						7367
HPV45	E1	EISLSGHKKA	115	11						7368
HPV45	E1	ELKELLOA	186	8						7369
HPV45	E1	ELLQASNKKA	189	10						7370
HPV45	E1	ELLQASNKKA	189	11						7371
HPV45	E1	EEAQETA	59	8						7372
HPV45	E1	EEAQETAQA	59	10						7373
HPV45	E1	EEAQETAQAL	59	11						7374
HPV45	E1	EEAQETAQAL	62	8						7375

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E1	EQETAQALFHA	62	11						7376
HPV45	E1	EQLSVDIDL	101	9						7377
HPV45	E1	ETAQALFHA	64	9						7378
HPV45	E1	ETATDTGSDM	38	10						7379
HPV45	E1	ETATDTGSDMV	38	11						7380
HPV45	E1	ETCMLIEPPKL	295	11						7381
HPV45	E1	ETIVEKKT	21	8						7382
HPV45	E1	ETIVEKKTGDV	21	11						7383
HPV45	E1	ETQVTVNT	146	8						7384
HPV45	E1	ETQVTVNTNA	146	10						7385
HPV45	E1	EVEAAETQV	141	9						7386
HPV45	E1	EVEAAETQVT	141	10						7387
HPV45	E1	EVEAAETQVTV	141	11						7388
HPV45	E1	EVQNDQV	74	8						7389
HPV45	E1	EVQNDQVQL	74	9						7390
HPV45	E1	EVQNDQVQLHL	74	11						7391
HPV45	E1	EVSGDTPEWI	324	10						7392
HPV45	E1	FAGGSKENSPL	89	11						7393
HPV45	E1	FIDTQLSI	50	8						7394
HPV45	E1	FIHFLQGA	483	8						7395
HPV45	E1	FIHFLQGA	483	9						7396
HPV45	E1	FIHFLQGAI	483	10						7397
HPV45	E1	FISFLRAL	446	8						7398
HPV45	E1	FLKGTGPKNCI	456	11						7399
HPV45	E1	FLKSNQCA	385	8						7400
HPV45	E1	FLKSNQCAKYL	385	11						7401
HPV45	E1	FLQGAHSFV	486	10						7402
HPV45	E1	FLRALKEFL	449	9						7403
HPV45	E1	FLRYQGVFEI	438	10						7404
HPV45	E1	FVETIVEKKT	19	10						7405
HPV45	E1	FVNSNSHFWL	494	10						7406
HPV45	E1	GIDDSNFDL	342	9						7407
HPV45	E1	GIPFGTFKCV	626	10						7408
HPV45	E1	GIPFGTFKCVT	626	11						7409
HPV45	E1	GISNISEV	318	8						7410
HPV45	E1	GLSFTDLV	209	8						7411
HPV45	E1	GLSTLLHV	286	8						7412
HPV45	E1	GLSTLLHVPET	286	11						7413
HPV45	E1	GMSFIHFL	480	8						7414
HPV45	E1	GMSFIHFLQGA	480	11						7415
HPV45	E1	GTFKCVTGQNT	630	11						7416
HPV45	E1	GTGNGWFFV	11	10						7417
HPV45	E1	GTPKKNCI	459	8						7418
HPV45	E1	GTPKKNCIL	459	9						7419
HPV45	E1	GTPKKNCILL	459	10						7420
HPV45	E1	GVEFISFL	443	8						7421

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E1	GVEFISFLRA	443	10						7422
HPV45	E1	GVEFISFLRAL	443	11						7423
HPV45	E1	GVLILALL	265	8						7424
HPV45	E1	HAQEVQNDA	71	9						7425
HPV45	E1	HAQEVQNDAQV	71	11						7426
HPV45	E1	HIQCLDCKWGV	256	11						7427
HPV45	E1	HLLKRKFA	83	8						7428
HPV45	E1	HTCWTFYDNYM	519	11						7429
HPV45	E1	HVPETCML	292	8						7430
HPV45	E1	HVPETCMLI	292	9						7431
HPV45	E1	ILLTSNIDPA	555	10						7432
HPV45	E1	ILLYGPANT	466	9						7433
HPV45	E1	IQCLDCKWGV	257	10						7434
HPV45	E1	IQCLDCKWGV	257	11						7435
HPV45	E1	IQRLTIQHGI	333	11						7436
HPV45	E1	ITELKELL	184	8						7437
HPV45	E1	ITELKELLQA	184	10						7438
HPV45	E1	IVEKKTGDV	23	9						7439
HPV45	E1	IVEKKTGDVI	23	10						7440
HPV45	E1	IVQFLRYQGV	435	10						7441
HPV45	E1	KAAMLAVFKDI	197	11						7442
HPV45	E1	KAKRRLFT	124	8						7443
HPV45	E1	KAKRRLFTI	124	9						7444
HPV45	E1	KIDEGGDWRPI	425	11						7445
HPV45	E1	KLRSSVAA	304	8	0.0003					7446
HPV45	E1	KLRSSVAAL	304	9						7447
HPV45	E1	KTLIKPAT	245	8						7448
HPV45	E1	KTLIKPATL	245	9						7449
HPV45	E1	KTLIKPATLYA	245	11						7450
HPV45	E1	KTTCTDWV	223	8						7451
HPV45	E1	KTTCTDWVM	223	9						7452
HPV45	E1	KTTCTDWVMA	223	10						7453
HPV45	E1	KTTCTDWVMAI	223	11						7454
HPV45	E1	KVAMLLDDA	510	8						7455
HPV45	E1	KVAMLLDDAT	510	9						7456
HPV45	E1	KVAMLLDDATHT	510	11						7457
HPV45	E1	LADCNNSA	375	8						7458
HPV45	E1	LADCNNSAA	375	9						7459
HPV45	E1	LADCNNSAAA	375	10						7460
HPV45	E1	LADTKVAM	506	8						7461
HPV45	E1	LADTKVAML	506	9						7462
HPV45	E1	LAVFKDIYGL	201	10						7463
HPV45	E1	LIEPPKLRSSV	299	11						7464
HPV45	E1	LJKPATLYA	247	9						7465
HPV45	E1	LJKPATLYAHI	247	11						7466
HPV45	E1	LLHVPETCM	290	9						7467

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E1	NALDGNPISI	531	10						7514
HPV45	E1	NISEVSGDT	321	9						7515
HPV45	E1	NTGKSYFGM	473	9						7516
HPV45	E1	NTNAENGGSV	152	10						7517
HPV45	E1	NVDPHCSI	177	8						7518
HPV45	E1	NVDPHCSIT	177	9						7519
HPV45	E1	NVDPHCSITEL	177	11						7520
HPV45	E1	PAKDNKWPLY	563	10						7521
HPV45	E1	PANTGKSYFGM	471	11						7522
HPV45	E1	PATLYAHI	250	8						7523
HPV45	E1	PATLYAHIQCL	250	11						7524
HPV45	E1	PILLTSNI	554	8						7525
HPV45	E1	PILLTSNIDPA	554	11						7526
HPV45	E1	PISIDRKHKPL	537	11						7527
HPV45	E1	PIVQLRYQGV	434	11						7528
HPV45	E1	PLADTKVA	505	8						7529
HPV45	E1	PLADTKVAM	505	9						7530
HPV45	E1	PLADTKVAML	505	10						7531
HPV45	E1	PLGEQLSV	98	8						7532
HPV45	E1	PLGEQLSVDI	98	10						7533
HPV45	E1	PLLQLKCPPI	546	10						7534
HPV45	E1	PLLQLKCPIL	546	11						7535
HPV45	E1	PTVAEGFKT	238	9						7536
HPV45	E1	PTVAEGFKTL	238	10						7537
HPV45	E1	PTVAEGFKTLI	238	11						7538
HPV45	E1	QAEQETAQA	60	9						7539
HPV45	E1	QAEQETAQAL	60	10						7540
HPV45	E1	QAKYLDKCA	391	9						7541
HPV45	E1	QAKYLDKCAV	391	10						7542
HPV45	E1	QAKYLDKCAVM	391	11						7543
HPV45	E1	QALFHAQEV	67	9	0.0002					7544
HPV45	E1	QASNKKA	192	8						7545
HPV45	E1	QASNKKAAM	192	9						7546
HPV45	E1	QASNKKAAML	192	10						7547
HPV45	E1	QASNKKAAMLA	192	11						7548
HPV45	E1	QLADCNSNA	374	9						7549
HPV45	E1	QLADCNSNAA	374	10						7550
HPV45	E1	QLADCNSNAAA	374	11						7551
HPV45	E1	QLKCPPII	549	8						7552
HPV45	E1	QLKCPPII	549	9	0.0003					7553
HPV45	E1	QLKCPPIIIT	549	10						7554
HPV45	E1	QLSICEQA	54	8						7555
HPV45	E1	QLSVDTDL	102	8						7556
HPV45	E1	QMNMSQWI	412	8						7557
HPV45	E1	QVLHLLKRKFA	80	11						7558
HPV45	E1	QVTVNTNA	148	8						7559

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E1	TVAKGLSTLL	282	10						7606
HPV45	E1	TVFTFPHA	577	8						7607
HPV45	E1	VAALYWYRT	309	9						7608
HPV45	E1	VAALYWYRTGI	309	11						7609
HPV45	E1	VAEGFKTL	240	8						7610
HPV45	E1	VAEGFKTLI	240	9						7611
HPV45	E1	VAKGLSTL	283	8						7612
HPV45	E1	VAKGLSTLL	283	9						7613
HPV45	E1	VAKGLSTLLHV	283	11						7614
HPV45	E1	VAMLDDAT	511	8						7615
HPV45	E1	VAMLDDATHT	511	10						7616
HPV45	E1	VISDDEDET	31	9						7617
HPV45	E1	VISDDEDETA	31	10						7618
HPV45	E1	VISDDEDETAT	31	11						7619
HPV45	E1	VLHLKRRKFA	81	10						7620
HPV45	E1	VMAIFGVNPT	230	10						7621
HPV45	E1	VMAIFGVNPTV	230	11						7622
HPV45	E1	VMCRHYKRA	400	9						7623
HPV45	E1	VQFLRYQGV	436	9						7624
HPV45	E1	VQNDAAQVL	75	8						7625
HPV45	E1	VQNDAAQVLHL	75	10						7626
HPV45	E1	VQNDAAQVLHLL	75	11						7627
HPV45	E1	VQWAFDNDL	354	9						7628
HPV45	E1	VQWAFDNDLT	354	10						7629
HPV45	E1	VTGQNTPL	635	9						7630
HPV45	E1	VTVTFPHA	576	9						7631
HPV45	E1	WAFDNDLT	356	8						7632
HPV45	E1	WIKYRCSKI	418	9						7633
HPV45	E1	WIQLTII	332	8						7634
HPV45	E1	WLEPLADT	502	8						7635
HPV45	E1	WLEPLADTKV	502	10						7636
HPV45	E1	WLEPLADTKVA	502	11						7637
HPV45	E1	WTYFDNYM	522	8						7638
HPV45	E1	WTYFDNYMRNA	522	11						7639
HPV45	E1	WVMAIFGV	229	8						7640
HPV45	E1	WVMAIFGVNPT	229	11						7641
HPV45	E1	YQAQADCSNA	372	11						7642
HPV45	E1	YLESRTV	571	8						7643
HPV45	E1	YLESRTVFT	571	10						7644
HPV45	E1	YLKDCAVM	394	8						7645
HPV45	E1	YMRNALDGNPI	528	11						7646
HPV45	E1	YQGVFISFL	441	10						7647
HPV45	E2	AACVSYWGV	156	9						7648
HPV45	E2	AIELQMAL	78	8						7649
HPV45	E2	AIELQMALKGL	78	11						7650
HPV45	E2	AILFTAREHGI	47	11						7651

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 Table VIII
 A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E2	AOSKYNNEEWT	89	11						7652
HPV45	E2	ATKRPRQCGL	247	10						7653
HPV45	E2	ATKRPRQCGLT	247	11						7654
HPV45	E2	ATQIVRQL	216	8						7655
HPV45	E2	ATQIVRQLQHA	216	11						7656
HPV45	E2	CLRYRLRKYA	305	10						7657
HPV45	E2	CMNYVVWDSI	134	10						7658
HPV45	E2	CVSYWGVYI	158	10						7659
HPV45	E2	DINSQISYWQL	31	11						7660
HPV45	E2	DTCEELWNT	102	9						7661
HPV45	E2	DTVSATQI	212	8						7662
HPV45	E2	DTVSATQIV	212	9						7663
HPV45	E2	DVVTIPNSV	351	9						7664
HPV45	E2	DVVTIPNSVQI	351	11						7665
HPV45	E2	EISSTWHWT	319	9						7666
HPV45	E2	ELQMALKGL	80	9						7667
HPV45	E2	ELQMALKGLA	80	10						7668
HPV45	E2	EQHIGRVNT	258	9						7669
HPV45	E2	EQHIGRVNTHV	258	11						7670
HPV45	E2	EQGIWDKT	148	8						7671
HPV45	E2	ETGIWDKTA	148	9						7672
HPV45	E2	ETGIWDKTA	148	10						7673
HPV45	E2	EVQRNTFL	343	8						7674
HPV45	E2	EVQRNTFLDV	343	10						7675
HPV45	E2	EVQRNTFLDVV	343	11						7676
HPV45	E2	EVQYGGNV	192	8						7677
HPV45	E2	EVQYGGNVI	192	9						7678
HPV45	E2	FLDVVTIPNSV	349	11						7679
HPV45	E2	FTAREHGI	50	8						7680
HPV45	E2	FTAREHGIT	50	9						7681
HPV45	E2	FTAREHGITKL	50	11						7682
HPV45	E2	GILTVTYNSEV	334	11						7683
HPV45	E2	GITKLNHQV	56	9						7684
HPV45	E2	GITKLNHQVV	56	10						7685
HPV45	E2	GIWDKTA	150	8						7686
HPV45	E2	GIWDKTAACV	150	10						7687
HPV45	E2	GLTEQHHRV	255	10						7688
HPV45	E2	GTPKPHIQT	237	9						7689
HPV45	E2	GTPKPHIQTPA	237	11						7690
HPV45	E2	GVYIKDGD	163	10						7691
HPV45	E2	GVYIKDGDIT	163	11						7692
HPV45	E2	HASTSTPKT	225	9						7693
HPV45	E2	HASTSTPKTA	225	10						7694
HPV45	E2	HLKGDKNL	295	9						7695
HPV45	E2	HQVVPPI	62	9						7696
HPV45	E2	HVHNPLCSST	267	11						7697

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E2	IHLKGDKNLS	293	11						7698
HPV45	E2	ILFTAREHGI	48	10						7699
HPV45	E2	ILFTAREHGI	48	11						7700
HPV45	E2	ILTVYNSEV	335	10						7701
HPV45	E2	ITETGIWDKT	146	10						7702
HPV45	E2	ITETGIWDKTA	146	11						7703
HPV45	E2	ITKLNHGV	57	8						7704
HPV45	E2	ITKLNHGVV	57	9						7705
HPV45	E2	IVRLQHA	219	8						7706
HPV45	E2	IVRLQHAST	219	10						7707
HPV45	E2	KAHKAIEL	74	8						7708
HPV45	E2	KAHKAIELQM	74	10						7709
HPV45	E2	KAHKAIELQMA	74	11						7710
HPV45	E2	KAIELQMA	77	8						7711
HPV45	E2	KAIELQMAL	77	9						7712
HPV45	E2	KLNHQVVPPI	59	10						7713
HPV45	E2	KMQTPKESL	2	9						7714
HPV45	E2	KTAACVSYWGV	154	11						7715
HPV45	E2	KVCSGNTT	284	8						7716
HPV45	E2	KVCSGNTTPI	284	10						7717
HPV45	E2	KVCSGNTTPII	284	11						7718
HPV45	E2	LIRLENAI	41	8						7719
HPV45	E2	LIRLENAI	41	9						7720
HPV45	E2	LIRLENAILFT	41	11						7721
HPV45	E2	LQDTCEEL	100	8						7722
HPV45	E2	LQDTCEELWNT	100	11						7723
HPV45	E2	LQHASTST	223	8						7724
HPV45	E2	LQHASTSTPKT	223	11						7725
HPV45	E2	LQMAKGL	81	8						7726
HPV45	E2	LQMAKGLA	81	9						7727
HPV45	E2	LTEQHIGRV	256	9						7728
HPV45	E2	LTEQHIGRVNT	256	11						7729
HPV45	E2	LTVTYNSEV	336	9						7730
HPV45	E2	MQTPKESL	3	8						7731
HPV45	E2	NISKSAHKA	69	10						7732
HPV45	E2	NISKSAHKA	69	11						7733
HPV45	E2	NISKSAAIKAI	347	8						7734
HPV45	E2	NTFLDVVT	347	9						7735
HPV45	E2	NTFLDVVTI	347	10						7736
HPV45	E2	NTGILTVT	332	8						7737
HPV45	E2	NTHVHNPL	265	8						7738
HPV45	E2	NTHVHNPL	265	9						7739
HPV45	E2	NTTPPIHL	289	8						7740
HPV45	E2	NTWEVQYGGNV	189	11						7741
HPV45	E2	NVIDCNDMS	198	9						7742
HPV45	E2	PATKPRQCGL	246	11						7743
HPV45	E2	PINISKSKA	67	9						7744

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id No.
HPV45	E2	QISVGYMT	360	8						7744
HPV45	E2	QISVGYMTI	360	9						7745
HPV45	E2	QISYWQLI	35	8						7746
HPV45	E2	QISYWQLRL	35	10						7747
HPV45	E2	QIVRQLQHA	218	9						7748
HPV45	E2	QIVRQLQHAST	218	11						7749
HPV45	E2	QLIRLENA	40	8						7750
HPV45	E2	QLIRLENAI	40	9						7751
HPV45	E2	QLIRLENAIL	40	10						7752
HPV45	E2	QLQHASTST	222	9						7753
HPV45	E2	QMALKGGLA	82	8						7754
HPV45	E2	QTPKESLSERL	4	11						7755
HPV45	E2	QVVPPINI	63	8						7756
HPV45	E2	RENAILFT	43	9						7757
HPV45	E2	RENAILFTA	43	10						7758
HPV45	E2	RLSALQDKI	13	9						7759
HPV45	E2	RLSALQDKIL	13	10						7760
HPV45	E2	RQLQHAST	221	8						7761
HPV45	E2	RQLQHASTST	221	10						7762
HPV45	E2	RVNTHVHNPL	263	10						7763
HPV45	E2	RVNTHVHNPLL	263	11						7764
HPV45	E2	SALQDKIL	15	8						7765
HPV45	E2	SATQIVRQL	215	9						7766
HPV45	E2	SIYYITET	142	8						7767
HPV45	E2	SIYYITETGI	142	10						7768
HPV45	E2	SLKCLRRL	302	9						7769
HPV45	E2	SLSERLSA	9	8						7770
HPV45	E2	SLSERLSAL	9	9						7771
HPV45	E2	SMCSTSDDT	205	9						7772
HPV45	E2	SMCSTSDDTV	205	10						7773
HPV45	E2	SQCFKKGGKT	113	10						7774
HPV45	E2	SQCFKKGGKTV	113	11						7775
HPV45	E2	SQISYWQL	34	8						7776
HPV45	E2	SQISYWQLI	34	9						7777
HPV45	E2	SQISYWQLRL	34	11						7778
HPV45	E2	STPKTASV	229	8						7779
HPV45	E2	STPKTASVGT	229	10						7780
HPV45	E2	STSDDTVSA	208	9						7781
HPV45	E2	STSDDTVSAT	208	10						7782
HPV45	E2	STSNKKRRKV	276	10						7783
HPV45	E2	STSTPKTA	227	8						7784
HPV45	E2	STSTPKTASV	227	10						7785
HPV45	E2	SVGTGPKPHI	235	9						7786
HPV45	E2	SVGTGPKPHIQT	235	11						7787
HPV45	E2	SVQISVGYM	358	9						7788
HPV45	E2	SVQISVGYMT	358	10						7789

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E2	SVQISVGYMTI	358	11						7790
HPV45	E2	TAACVSYWGV	155	10						7791
HPV45	E2	TAREHGIT	51	8						7792
HPV45	E2	TAREHGITKL	51	10						7793
HPV45	E2	TASVGTTPKPHI	233	11						7794
HPV45	E2	TIPNSVQI	354	8						7795
HPV45	E2	TIPNSVQISV	354	10						7796
HPV45	E2	TLQDTCEEL	99	9						7797
HPV45	E2	TQIVRQLQHA	217	10						7798
HPV45	E2	TVSATQIV	213	8						7799
HPV45	E2	TVSATQIVRQL	213	11						7800
HPV45	E2	TVTYNSEV	337	8						7801
HPV45	E2	VIDCNDSM	199	8						7802
HPV45	E2	VIDCNDSMCST	199	11						7803
HPV45	E2	VQISVGYM	359	8						7804
HPV45	E2	VQISVGYMT	359	9						7805
HPV45	E2	VQISVGYMTI	359	10						7806
HPV45	E2	VQRNTFLDV	344	9						7807
HPV45	E2	VQRNTFLDVV	344	10						7808
HPV45	E2	VQRNTFLDVVT	344	11						7809
HPV45	E2	VQYGGNVI	193	8						7810
HPV45	E2	VTIPNSVQI	353	9						7811
HPV45	E2	VTIPNSVQISV	353	11						7812
HPV45	E2	VTYNSEVQRNT	338	11						7813
HPV45	E2	VVTIPNSV	352	8						7814
HPV45	E2	VVTIPNSVQI	352	10						7815
HPV45	E2	VVWDSIYI	138	9						7816
HPV45	E2	VVWDSIYYIT	138	10						7817
HPV45	E2	WQLIRLENAI	39	9						7818
HPV45	E2	WQLIRLENAI	39	10						7819
HPV45	E2	WQLIRLENAI	39	11						7820
HPV45	E2	WTGCKNT	326	8						7821
HPV45	E2	WTGCKNTGI	326	10						7822
HPV45	E2	WTGCKNTGIL	326	11						7823
HPV45	E2	WTLQDTCEEL	98	10						7824
HPV45	E2	YADHYSEI	313	8						7825
HPV45	E2	YADHYSEISST	313	11						7826
HPV45	E2	YIKDGDIT	166	8						7827
HPV45	E2	YIKDGDITYYV	166	11						7828
HPV45	E2	YITETGIWDKT	145	11						7829
HPV45	E2	YVWVDSIYI	137	10						7830
HPV45	E2	YVWVDSIYYIT	137	11						7831
HPV45	E6	ATLERTEV	37	8						7832
HPV45	E6	CIAYAACHKCI	59	11						7833
HPV45	E6	CIDFYSRI	68	8	0.0001					7834
HPV45	E6	CIDFYSRIREL	68	11						7835

Table VIII

[illegible]

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E6	MARFDDPT	1	8						7882
HPV45	E6	NTELYNLL	95	8						7883
HPV45	E6	NTELYNLLI	95	9						7884
HPV45	E6	NTSLQDVSI	22	9						7885
HPV45	E6	NTSLQDVSI	22	10						7886
HPV45	E6	PAEKRRHL	114	8						7887
HPV45	E6	PLNPAEKRRHL	111	11						7888
HPV45	E6	PTQRPYKL	7	8						7889
HPV45	E6	PTQRPYKLPDL	7	11						7890
HPV45	E6	RLRRRET	149	8						7891
HPV45	E6	RLRRRETQV	149	10						7892
HPV45	E6	RQERLRRRRET	146	11						7893
HPV45	E6	RTEVYQFA	41	8						7894
HPV45	E6	SIACVYCKA	29	9						7895
HPV45	E6	SIACVYCKAT	29	10						7896
HPV45	E6	SIACVYCKATL	29	11						7897
HPV45	E6	SLQDVSI	24	8						7898
HPV45	E6	SLQDVSIACV	24	10						7899
HPV45	E6	SVYGETLEKI	84	10						7900
HPV45	E6	SVYGETLEKIT	84	11						7901
HPV45	E6	TLEKITNT	89	8						7902
HPV45	E6	TLEKITNTL	89	10						7903
HPV45	E6	TLERTEVYQFA	38	11						7904
HPV45	E6	TQRPYKLPDL	8	10						7905
HPV45	E6	YAACHKCI	62	8						7906
HPV45	E6	YQFAFKDL	45	8						7907
HPV45	E6	YQFAFKDLFI	45	10						7908
HPV45	E6	YQFAFKDLFIV	45	11						7909
HPV45	E7	AQLPARRA	48	8						7910
HPV45	E7	ATLQEVIL	6	8						7911
HPV45	E7	ATLQEVILHL	6	10						7912
HPV45	E7	CVCKCKDGRI	64	10						7913
HPV45	E7	DLCLCYEQL	25	8						7914
HPV45	E7	DLRTLQQL	83	8						7915
HPV45	E7	DLRTLQQLFL	83	10						7916
HPV45	E7	EADGVSHA	41	8						7917
HPV45	E7	EADGVSHAQL	41	10						7918
HPV45	E7	ELDPVDLL	20	8						7919
HPV45	E7	ELTVESSA	74	8						7920
HPV45	E7	ELTVESSADDL	74	11						7921
HPV45	E7	FLSTLSFV	91	8						7922
HPV45	E7	FVCPWCAT	97	8						7923
HPV45	E7	GVSHAQLPA	44	9						7924
HPV45	E7	HAQLPARRA	47	9						7925
HPV45	E7	HLEPQNEL	14	8						7926
HPV45	E7	HLEPQNELDPV	14	11						7927

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	E7	IVLHLEPQNEL	11	11						7928
HPV45	E7	LQEIVLHL	8	8						7929
HPV45	E7	LQQLFLST	87	8						7930
HPV45	E7	LQQLFLSTL	87	9						7931
HPV45	E7	LTVESSADDL	75	10						7932
HPV45	E7	PQNELDPV	17	8						7933
HPV45	E7	PQNELDPVDL	17	10						7934
HPV45	E7	PQNELDPVDLL	17	11						7935
HPV45	E7	PQRHKILCV	57	9						7936
HPV45	E7	PVDLLCYEQL	23	10						7937
HPV45	E7	QLFLSTLSFV	89	10						7938
HPV45	E7	QQLFLSTL	88	8						7939
HPV45	E7	QQLFLSTLSFV	88	11						7940
HPV45	E7	RAEPQRHKI	54	9						7941
HPV45	E7	RAEPQRHKIL	54	10						7942
HPV45	E7	RATLQEIV	5	8						7943
HPV45	E7	RATLQEIVL	5	9						7944
HPV45	E7	RATLQEIVLHL	5	11						7945
HPV45	E7	RIELTVESSA	72	10						7946
HPV45	E7	RTLQQLFL	85	8						7947
HPV45	E7	RTLQQLFLST	85	10						7948
HPV45	E7	RTLQQLFLSTL	85	11						7949
HPV45	E7	SADDLRTL	80	8						7950
HPV45	E7	SADDLRTLQQL	80	11						7951
HPV45	E7	STLSFVCPWCA	93	11						7952
HPV45	E7	TLQEIVLHL	7	9						7953
HPV45	E7	TLQQLFLST	86	9						7954
HPV45	E7	TLQQLFLSTL	86	10						7955
HPV45	E7	TLSFVCPWCA	94	10						7956
HPV45	E7	TLSFVCPWCA	94	11						7957
HPV45	E7	TVESSADDL	76	9						7958
HPV45	E7	TVESSADDLRT	76	11						7959
HPV45	E7	VLHLEPQNEL	12	10						7960
HPV45	L1	AASTSTASRPA	517	11						7961
HPV45	L1	AATAVITQDV	161	10						7962
HPV45	L1	AIGEHWAKGT	191	10						7963
HPV45	L1	AIGEHWAKGTL	191	11						7964
HPV45	L1	ALPDNKFGL	103	10						7965
HPV45	L1	ALWRPSDST	28	9						7966
HPV45	L1	ALWRPSDSTV	28	10						7967
HPV45	L1	AMDFSTLQDT	234	10						7968
HPV45	L1	AQGHNNNGI	345	8						7969
HPV45	L1	AQLQPGDCPPL	205	11						7970
HPV45	L1	ATAVITQDV	162	9						7971
HPV45	L1	AVITQDVRDNI	164	11						7972
HPV45	L1	AVTCQKDT	455	8						7973

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	AVTCKDDTT	455	9						7974
HPV45	L1	CASTQNPV	374	8						7975
HPV45	L1	CASTQNPVPNT	374	11						7976
HPV45	L1	CILGCVPA	184	8						7977
HPV45	L1	CILGCVPAI	184	9						7978
HPV45	L1	CLRREQLFA	276	9						7979
HPV45	L1	CQSICKYDPYL	252	11						7980
HPV45	L1	CTITLAEV	409	9						7981
HPV45	L1	CTITLAEVM	409	10						7982
HPV45	L1	CVPAIGHWA	188	10						7983
HPV45	L1	CVYSPSPGSI	318	11						7984
HPV45	L1	DLKEKFSSDL	480	10						7985
HPV45	L1	DLQFIFQL	401	8						7986
HPV45	L1	DLQFIFQLCT	401	10						7987
HPV45	L1	DLQFIFQLCTI	401	11						7988
HPV45	L1	DLYIKGTS	301	9						7989
HPV45	L1	DLYIKGTSANM	301	11						7990
HPV45	L1	DMVDGTGYA	226	9						7991
HPV45	L1	DMVDGTGYGAM	226	10						7992
HPV45	L1	DQYPLGRKFL	490	10						7993
HPV45	L1	DQYPLGRKFLV	490	11						7994
HPV45	L1	DTESAHAA	155	8						7995
HPV45	L1	DTESAHAAAT	155	9						7996
HPV45	L1	DTESAHAAATA	155	10						7997
HPV45	L1	DTESAHAAATAV	155	11						7998
HPV45	L1	DTGYGAMDFST	229	11						7999
HPV45	L1	DTKCEVPL	242	8						8000
HPV45	L1	DTKCEVPLDI	242	10						8001
HPV45	L1	DTTRSTNL	364	8						8002
HPV45	L1	DTTRSTNL.T	364	9						8003
HPV45	L1	DTTRSTNL.TL	364	10						8004
HPV45	L1	DTVPTDLYI	296	9						8005
HPV45	L1	DTYRFVQSV	446	9						8006
HPV45	L1	DTYRFVQSV	446	10						8007
HPV45	L1	DTYRFVQSVAV	446	11						8008
HPV45	L1	DVRDNVSV	169	8						8009
HPV45	L1	EIGRGQPL	133	8						8010
HPV45	L1	EIGRGQPLGI	133	10						8011
HPV45	L1	ETQLVWA	121	8						8012
HPV45	L1	ETQLVWACV	121	10						8013
HPV45	L1	EVMSYIHS	416	9						8014
HPV45	L1	EVPLDICQSI	246	10						8015
HPV45	L1	FARHFWNRA	283	9						8016
HPV45	L1	FARHFWNRAGV	283	11						8017
HPV45	L1	FIFQLCTI	404	8						8018
HPV45	L1	FIFQLCTIT	404	9						8019

Table VIII

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	FIFQLCTITLT	404	10						8020
HPV45	L1	FIFQLCTITLT	404	11						8021
HPV45	L1	FLKNVNVFPI	14	10						8022
HPV45	L1	FQLCTITLT	406	8						8023
HPV45	L1	FQLCTITLT	406	9						8024
HPV45	L1	FQLCTITLTA	406	10						8025
HPV45	L1	FVQSVAVT	450	8						8026
HPV45	L1	FVTVVDDTT	359	8						8027
HPV45	L1	FVTVVDDTTRST	359	11						8028
HPV45	L1	GAGNKQAV	82	8						8029
HPV45	L1	GAGNKQAVPKV	82	11						8030
HPV45	L1	GAMDFSTL	233	8						8031
HPV45	L1	GAMDFSTLQDT	233	11						8032
HPV45	L1	GICWHNQL	351	8						8033
HPV45	L1	GICWHNQLFV	351	10						8034
HPV45	L1	GICWHNQLFVT	351	11						8035
HPV45	L1	GIIFLKNV	10	9						8036
HPV45	L1	GIIFLKNVNV	10	11						8037
HPV45	L1	GLRRRPTI	503	8						8038
HPV45	L1	GLSGHPFYNKL	143	11						8039
HPV45	L1	GMEIGRGQPL	131	10						8040
HPV45	L1	GQPLGIGL	137	8						8041
HPV45	L1	GTCLKPAQL	199	9						8042
HPV45	L1	GTSANMRET	306	9						8043
HPV45	L1	GVMGDTVPT	292	9						8044
HPV45	L1	GVMGDTVPTDL	292	11						8045
HPV45	L1	GVPPPTT	435	8						8046
HPV45	L1	GVPPPTTSL	435	10						8047
HPV45	L1	GVPPPTTSLV	435	11						8048
HPV45	L1	HAATAVIT	160	8						8049
HPV45	L1	HAATAVITQDV	160	11						8050
HPV45	L1	HAGSSRL	62	8						8051
HPV45	L1	HAGSSRLLT	62	9						8052
HPV45	L1	HAGSSRLLT	62	10						8053
HPV45	L1	HAGSSRLLT	62	10						8054
HPV45	L1	HVEEYDLQFI	396	10						8055
HPV45	L1	IIEDGDMV	221	8						8056
HPV45	L1	IIEDGDMVDT	221	10						8057
HPV45	L1	IIFLKNVNV	12	9						8058
HPV45	L1	IIFLKNV	11	8						8059
HPV45	L1	IIFLKNVNV	11	10						8060
HPV45	L1	IYGHGII	5	8						8061
HPV45	L1	IYGHGIII	5	9						8062
HPV45	L1	IYGHGIIIFL	5	11						8063
HPV45	L1	ILENWNFGV	428	9						8064
HPV45	L1	ILGCVPAI	185	8						8065
HPV45	L1	ITLTAEVM	411	8						8066

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	ITLTAEVMSYI	411	11						8066
HPV45	L1	ITQDVRDQV	166	9						8067
HPV45	L1	ITQDVRDQVSV	166	11						8068
HPV45	L1	ITTSDSQL	328	8						8069
HPV45	L1	KAQGHNNGI	344	9						8070
HPV45	L1	KLDDTESA	152	8						8071
HPV45	L1	KLDDTESAHA	152	10						8072
HPV45	L1	KLDDTESAHAA	152	11						8073
HPV45	L1	KLKFWTVDL	473	9						8074
HPV45	L1	KQAVPKVSA	86	9						8075
HPV45	L1	KQDPYDKL	467	8						8076
HPV45	L1	KQTQLCIL	179	8						8077
HPV45	L1	KQTQLCILGCV	179	11						8078
HPV45	L1	KVSAYQYRV	91	9						8079
HPV45	L1	LLTVGNPYFRV	68	11						8080
HPV45	L1	LQDTKCEV	240	8						8081
HPV45	L1	LQDTKCEVPL	240	10						8082
HPV45	L1	LQFIFQLCT	402	9						8083
HPV45	L1	LQFIFQLCTI	402	10						8084
HPV45	L1	LQFIFQLCTIT	402	11						8085
HPV45	L1	LQPGDCPPL	207	9						8086
HPV45	L1	LQPGDCPPLLEL	207	11						8087
HPV45	L1	LTAEVMSYI	413	9						8088
HPV45	L1	LTLCASTQNPV	371	11						8089
HPV45	L1	LTGPNPYFRV	69	10						8090
HPV45	L1	LTGPNPYFRVV	69	11						8091
HPV45	L1	LVDTYRFV	444	8						8092
HPV45	L1	LVDTYRFVQSV	444	11						8093
HPV45	L1	LVQAGLRRRPT	499	11						8094
HPV45	L1	LVWACVGM	125	8						8095
HPV45	L1	LVWACVGMEL	125	10						8096
HPV45	L1	MAHNIYGHGI	1	11						8097
HPV45	L1	MALWRPSDST	27	10						8098
HPV45	L1	MALWRPSDSTV	27	11						8099
HPV45	L1	MVDTGYGA	227	8						8100
HPV45	L1	MVDTGYGAM	227	9						8101
HPV45	L1	NIYGHGI	4	8						8102
HPV45	L1	NIYGHGII	4	9						8103
HPV45	L1	NIYGHGIII	4	10						8104
HPV45	L1	NLTLCAST	370	8						8105
HPV45	L1	NMRETPGSCV	310	10						8106
HPV45	L1	NQLFVTIV	356	8						8107
HPV45	L1	NQLFVTIVVDT	356	10						8108
HPV45	L1	NQLFVTIVVDTT	356	11						8109
HPV45	L1	NTDDYVSRT	49	9						8110
HPV45	L1	NTDDYVSRTSI	49	11						8111

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	NTIEDGDM	219	9						8112
HPV45	L1	NTIEDGDMV	219	10						8113
HPV45	L1	NVFIQLQM	19	9						8114
HPV45	L1	NVFIQLQMA	19	10						8115
HPV45	L1	NVFIQLQMAL	19	11						8116
HPV45	L1	NVFIQL	17	9						8117
HPV45	L1	NVNVFIQLQM	17	11						8118
HPV45	L1	NVSDYKQT	173	9						8119
HPV45	L1	NVSDYKQTQL	173	11						8120
HPV45	L1	PAASTSTA	516	8						8121
HPV45	L1	PAIGEHW	190	8						8122
HPV45	L1	PAIGEHWAKGT	190	11						8123
HPV45	L1	PIFLQMAL	22	8						8124
HPV45	L1	PLDICQSI	248	8						8125
HPV45	L1	PLELKNNTI	214	8						8126
HPV45	L1	PLELKNTHI	214	9						8127
HPV45	L1	PLGRKFLV	493	8						8128
HPV45	L1	PLGRKFLVQA	493	10						8129
HPV45	L1	PTDLYIKGT	299	9						8130
HPV45	L1	PTDLYIKGTS	299	11						8131
HPV45	L1	PTIGPRKRPA	508	10						8132
HPV45	L1	PTIGPRKRPA	508	11						8133
HPV45	L1	PTKFKHYSRHV	387	11						8134
HPV45	L1	PTTSLVDI	440	8						8135
HPV45	L1	PVPNTYDPT	380	9						8136
HPV45	L1	QAGLRRRPT	501	9						8137
HPV45	L1	QAGLRRRPTI	501	10						8138
HPV45	L1	QAVPKVSA	87	8						8139
HPV45	L1	QLCILGCV	182	8						8140
HPV45	L1	QLCILGCVPA	182	10						8141
HPV45	L1	QLCILGCVPAI	182	11						8142
HPV45	L1	QLCTITLT	407	8						8143
HPV45	L1	QLCTITLTA	407	9						8144
HPV45	L1	QLCTITLTAEV	407	11						8145
HPV45	L1	QLFARHFWNRA	281	11						8146
HPV45	L1	QLFNKPYWL	334	9						8147
HPV45	L1	QLFVTVDIT	357	9						8148
HPV45	L1	QLFVTVDIT	357	10						8149
HPV45	L1	QLQPGDCPPL	206	10						8150
HPV45	L1	QMALWRPSDST	26	11						8151
HPV45	L1	QMSADPYGDSM	263	11						8152
HPV45	L1	QTQLCILGCV	180	10						8153
HPV45	L1	RAGVMGDT	290	8						8154
HPV45	L1	RAGVMGDTV	290	9						8155
HPV45	L1	RAGVMGDTVPT	290	11						8156
HPV45	L1	RLVWACVGM	124	9						8157

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	RLVWACVGMEL	124	11						8158
HPV45	L1	RTSIFYHA	56	8						8159
HPV45	L1	RVNTDDYV	46	9						8160
HPV45	L1	SADPYGDSM	265	9						8161
HPV45	L1	SAHAATAV	158	8						8162
HPV45	L1	SAHAATAVI	158	9						8163
HPV45	L1	SAHAATAVIT	158	10						8164
HPV45	L1	SAYQYRVFRV	93	10						8165
HPV45	L1	SAYQYRVFRVA	93	11						8166
HPV45	L1	SICKYPDYL	254	9						8167
HPV45	L1	SICKYPDYLM	254	11						8168
HPV45	L1	SIFYHAGSSRL	58	11						8169
HPV45	L1	SILEWNFGV	427	10						8170
HPV45	L1	SITSDSQL	327	9						8171
HPV45	L1	SLVDYTFV	443	9						8172
HPV45	L1	SMFFCLRRQL	272	11						8173
HPV45	L1	SQLFNKPYWL	333	10						8174
HPV45	L1	STASRPAA	521	10						8175
HPV45	L1	STIYNPET	115	8						8176
HPV45	L1	STIYNPETQRL	115	11						8177
HPV45	L1	STLQDTKCEV	238	10						8178
HPV45	L1	STNLTCA	368	8						8179
HPV45	L1	STNLTLCAS	368	10						8180
HPV45	L1	STQNPVNT	376	9						8181
HPV45	L1	STSTASRPA	519	9						8182
HPV45	L1	STVYLPPSV	35	10						8183
HPV45	L1	STVYLPPPSVA	35	11						8184
HPV45	L1	SVARVNT	43	8						8185
HPV45	L1	SVAVTCQKDT	453	10						8186
HPV45	L1	SVAVTCQKDTT	453	11						8187
HPV45	L1	SVDYKQTL	175	9						8188
HPV45	L1	SVDYKQTLQCI	175	11						8189
HPV45	L1	TAEVMSYI	414	8						8190
HPV45	L1	TAEVMSYIISM	414	11						8191
HPV45	L1	TASRPAA	522	9						8192
HPV45	L1	TASRPAAKRV	522	11						8193
HPV45	L1	TASRPAAKRVRI	522	11						8194
HPV45	L1	TAITQDV	163	8						8195
HPV45	L1	TIGPRKRPAA	509	9						8196
HPV45	L1	TIGPRKRPAA	509	10						8197
HPV45	L1	TIHEDGDM	220	8						8198
HPV45	L1	TIHEDGDMV	220	9						8199
HPV45	L1	TIHEDGDMVDT	220	11						8200
HPV45	L1	TITLTAEV	410	8						8201
HPV45	L1	TITLTAEV	410	9						8202
HPV45	L1	TIYNPETQRL	116	10						8203
HPV45	L1	TIYNPETQRLV	116	11						8204

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Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	TLCASTQNPNV	372	10						8204
HPV45	L1	TLCKPAQL	200	8						8205
HPV45	L1	TLQDTKCEV	239	9						8206
HPV45	L1	TLQDTKCEVPL	239	11						8207
HPV45	L1	TLTAEVMSYI	412	10						8208
HPV45	L1	TQDVRDNV	167	8						8209
HPV45	L1	TQDVRDNVSV	167	10						8210
HPV45	L1	TQLCILGCV	181	9						8211
HPV45	L1	TQLCILGCVPA	181	11						8212
HPV45	L1	TQNPVPNT	377	8						8213
HPV45	L1	TQRLVWACV	122	9						8214
HPV45	L1	TQRLVWACVGM	122	11						8215
HPV45	L1	TTRSTNLT	365	8						8216
HPV45	L1	TTRSTNLT	365	9						8217
HPV45	L1	TTRSTNLT	365	11						8218
HPV45	L1	TTSLVDYTFV	441	11						8219
HPV45	L1	TVGNPYFRV	70	9						8220
HPV45	L1	TVGNPYFRV	70	10						8221
HPV45	L1	TVPTDLYI	297	8						8222
HPV45	L1	TVPTDLYIKGT	297	11						8223
HPV45	L1	TVVDTTRST	361	9						8224
HPV45	L1	TVVDTTRSTNL	361	11						8225
HPV45	L1	TVYLPSPSV	36	9						8226
HPV45	L1	TVYLPSPSA	36	10						8227
HPV45	L1	VALDPNKFGL	102	11						8228
HPV45	L1	VARVNTDDYV	44	11						8229
HPV45	L1	VAVTCQKDT	454	9						8230
HPV45	L1	VAVTCQKDTT	454	10						8231
HPV45	L1	VITQDVRDNV	165	10						8232
HPV45	L1	VMGDTVPT	293	8						8233
HPV45	L1	VMGDTVPTDL	293	10						8234
HPV45	L1	VMSYHSM	417	8						8235
HPV45	L1	VQAGLRRRPT	500	10						8236
HPV45	L1	VQAGLRRRPTI	500	11						8237
HPV45	L1	VTCQKDTT	456	8						8238
HPV45	L1	VTVDTTTRST	360	10						8239
HPV45	L1	VVDTRST	362	8						8240
HPV45	L1	VVDTRSTNL	362	10						8241
HPV45	L1	VVDTRSTNL	362	11						8242
HPV45	L1	VNTDDYV	47	8						8243
HPV45	L1	VNTDDYVSR	47	11						8244
HPV45	L1	VPSGAGNKQA	78	11						8245
HPV45	L1	WACVGMEL	127	8						8246
HPV45	L1	WAKGTLCKPA	196	10						8247
HPV45	L1	YIHSMNSSI	420	9						8248
HPV45	L1	YIHSMNSSIL	420	10						8249

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L1	YIKGTSANM	303	9						8250
HPV45	L1	YLPSPSVA	38	8						8251
HPV45	L1	YLPSPSVARV	38	10						8252
HPV45	L1	YLPSPSVARVV	38	11						8253
HPV45	L1	YQYRVFRV	95	8						8254
HPV45	L1	YQYRVFRVA	95	9						8255
HPV45	L1	YQYRVFRVAL	95	10						8256
HPV45	L1	YVSRTSIFYHA	53	11						8257
HPV45	L2	AARRKRASA	6	9						8258
HPV45	L2	AARRKRASAT	6	10						8259
HPV45	L2	AASSYSNV	381	8						8260
HPV45	L2	AASSYSNVT	381	9						8261
HPV45	L2	AASSYSNVTV	381	10						8262
HPV45	L2	AATEEIEL	327	8						8263
HPV45	L2	AATEEIELQPL	327	11						8264
HPV45	L2	ALSSRRGT	286	8						8265
HPV45	L2	ALSSRRGTIV	286	9						8266
HPV45	L2	ATEEIELQPL	328	10						8267
HPV45	L2	ATEEIELQPLI	328	11						8268
HPV45	L2	ATMFTRSQKQI	303	11						8269
HPV45	L2	ATNDSDLFDV	340	10						8270
HPV45	L2	AVLDITPT	139	8						8271
HPV45	L2	AVLDITPTV	139	9						8272
HPV45	L2	DIILPSHT	405	8						8273
HPV45	L2	DIILPSHTPM	405	10						8274
HPV45	L2	DIIRLHRPA	278	9						8275
HPV45	L2	DIIRLHRPAL	278	10						8276
HPV45	L2	DISPIAAT	322	8						8277
HPV45	L2	DISPIAATEEI	322	11						8278
HPV45	L2	DITPTVDSV	142	9						8279
HPV45	L2	DITPTVDSVSI	142	11						8280
HPV45	L2	DLYRTCKQSGT	16	11						8281
HPV45	L2	DTTLSFPT	260	9						8282
HPV45	L2	DVGPTTRPPV	83	9						8283
HPV45	L2	DVGPTTRPPVV	83	10						8284
HPV45	L2	DVGPTTRPPVVI	83	11						8285
HPV45	L2	DVINKVEGT	30	9						8286
HPV45	L2	DVINKVEGTT	30	10						8287
HPV45	L2	DVINKVEGTTL	30	11						8288
HPV45	L2	DVIYTGPD	397	10						8289
HPV45	L2	DVIYTGPDH	397	11						8290
HPV45	L2	DVYADFPFPA	348	10						8291
HPV45	L2	EIEIQPLI	331	8						8292
HPV45	L2	EIEIQPLISA	331	10						8293
HPV45	L2	EIEIQPLISAT	331	11						8294
HPV45	L2	EIPLQTF	194	8						8295

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L2	EITSSGTT	129	8						8296
HPV45	L2	EITSSGTTT	129	9						8297
HPV45	L2	EITSSGTTTPA	129	11						8298
HPV45	L2	ELQPLISA	333	8						8299
HPV45	L2	ELQPLISAT	333	9						8300
HPV45	L2	EVPTQGEV	169	8						8301
HPV45	L2	EVSGNIFV	175	8						8302
HPV45	L2	EVSGNIFVGT	175	10						8303
HPV45	L2	FADGFVAA	456	8						8304
HPV45	L2	FASSSGT	200	8						8305
HPV45	L2	FASSSGTEPI	200	11						8306
HPV45	L2	FLGGLGIGT	53	9						8307
HPV45	L2	FLTHPSSL	241	8						8308
HPV45	L2	FLTHPSSLV	241	9						8309
HPV45	L2	FLTHPSSLVT	241	10						8310
HPV45	L2	FMDIIRLHRPA	276	11						8311
HPV45	L2	FTGTSGFEI	122	9						8312
HPV45	L2	FTGTSGFEIT	122	10						8313
HPV45	L2	FTNPAFSDPSI	157	11						8314
HPV45	L2	FTSGKQI	306	8						8315
HPV45	L2	FTYPKYSL	368	8						8316
HPV45	L2	FTYPKYSLT	368	9						8317
HPV45	L2	FTYPKYSLTM	368	10						8318
HPV45	L2	GAPVPTFT	116	8						8319
HPV45	L2	GAPVPTFTGT	116	10						8320
HPV45	L2	GIFLGLGI	51	9						8321
HPV45	L2	GIFLGLGIGT	51	11						8322
HPV45	L2	GIHGTQYVL	430	9						8323
HPV45	L2	GQRATMFT	300	8						8324
HPV45	L2	GTCPPDVI	25	8						8325
HPV45	L2	GTCPPDVINKV	25	11						8326
HPV45	L2	GTEPISST	206	8						8327
HPV45	L2	GTEPISSTPL	206	10						8328
HPV45	L2	GTSGSGGRT	60	10						8329
HPV45	L2	GTSGFEIT	124	8						8330
HPV45	L2	GTTLADKI	37	8						8331
HPV45	L2	GTTLADKIL	37	9						8332
HPV45	L2	GTTTPAVL	134	8						8333
HPV45	L2	GTTTPAVLDI	134	10						8334
HPV45	L2	GTTTPAVLDIT	134	11						8335
HPV45	L2	GTVRF SRL	292	8						8336
HPV45	L2	HTPMWVPSST	411	8						8337
HPV45	L2	HTPMWVPSPT	411	11						8338
HPV45	L2	IAATEEIEL	326	9						8339
HPV45	L2	IIEVPQTGEV	167	10						8340
HPV45	L2	IILPSHTPM	406	9						8341

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L2	IIRLHRPA	279	8						8342
HPV45	L2	IIRLHRPAL	279	9						8343
HPV45	L2	ILPSHTPM	407	8						8344
HPV45	L2	ILQWSSLGI	44	9						8345
HPV45	L2	ILQWSSLGIFL	44	11						8346
HPV45	L2	ITPTVDSV	143	8						8347
HPV45	L2	ITPTVDSVSI	143	10						8348
HPV45	L2	ITSSGTTT	130	8						8349
HPV45	L2	ITSSGTTTPA	130	10						8350
HPV45	L2	ITSSGTTTPAV	130	11						8351
HPV45	L2	IVTLVEDSSV	103	10						8352
HPV45	L2	IVTLVEDSSVV	103	11						8353
HPV45	L2	KILQWSSL	43	8						8354
HPV45	L2	KILQWSSLGI	43	10						8355
HPV45	L2	KQSGTCPPDV	22	10						8356
HPV45	L2	KQSGTCPPDVI	22	11						8357
HPV45	L2	KVEGTTLA	34	8						8358
HPV45	L2	KVEGTTLADKI	34	11						8359
HPV45	L2	LADKILQWSSL	40	11						8360
HPV45	L2	LISATNDSL	337	10						8361
HPV45	L2	LQPLISAT	334	8						8362
HPV45	L2	LQTFASSGSGT	197	11						8363
HPV45	L2	LQWSSLGI	45	8						8364
HPV45	L2	LQWSSLGIFL	45	10						8365
HPV45	L2	LTHPSSLV	242	8						8366
HPV45	L2	LTHPSSLV	242	9						8367
HPV45	L2	LTMPSTAA	375	8						8368
HPV45	L2	LTSAWDVPI	392	9						8369
HPV45	L2	LTSAWDVPIYT	392	11						8370
HPV45	L2	LVEDSSVV	106	8						8371
HPV45	L2	LVEDSSVVA	106	9						8372
HPV45	L2	LVTFDNPA	248	8						8373
HPV45	L2	NASTTTYI	422	8						8374
HPV45	L2	NASTTTYIGI	422	10						8375
HPV45	L2	NIFVGTPT	179	8						8376
HPV45	L2	NOQVRVST	231	8						8377
HPV45	L2	NTVVDVGPT	79	9						8378
HPV45	L2	NP/PDSDFM	270	8						8379
HPV45	L2	NP/PDSDFMDI	270	10						8380
HPV45	L2	NP/PDSDFMDII	270	11						8381
HPV45	L2	NVTVPLTSA	387	9						8382
HPV45	L2	PAFSDPSI	160	8						8383
HPV45	L2	PAFSDPSII	160	9						8384
HPV45	L2	PAFSDPSIIEV	160	11						8385
HPV45	L2	PALSSRRGT	285	9						8386
HPV45	L2	PALSSRRGTGTV	285	10						8387

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L2	PASTTPST	356	8						8388
HPV45	L2	PASTTPSTI	356	9						8389
HPV45	L2	PAVLDTPT	138	9						8390
HPV45	L2	PAVLDTPTV	138	10						8391
HPV45	L2	PAYELDT	254	8						8392
HPV45	L2	PAYELDTI	254	9						8393
HPV45	L2	PAYELDTTL	254	10						8394
HPV45	L2	PIAATEEI	325	8						8395
HPV45	L2	PIAATEEIEL	325	10						8396
HPV45	L2	PISTPLPT	209	9						8397
HPV45	L2	PISTPLPTV	209	10						8398
HPV45	L2	PIYTGPDII	399	8						8399
HPV45	L2	PIYTGPDII	399	9						8400
HPV45	L2	PIYTGPDHIL	399	10						8401
HPV45	L2	PLDTLSFEPT	258	11						8402
HPV45	L2	PLGGRSNT	73	8						8403
HPV45	L2	PLGGRSNTV	73	9						8404
HPV45	L2	PLGGRSNTVV	73	10						8405
HPV45	L2	PLISATNDSDL	336	11						8406
HPV45	L2	PLTVRRV	214	8						8407
HPV45	L2	PLTSAWDV	391	8						8408
HPV45	L2	PLTSAWDVPI	391	10						8409
HPV45	L2	PMWPSTST	413	9						8410
HPV45	L2	PMWPSTSTNA	413	11						8411
HPV45	L2	PQTGEVSGNI	171	10						8412
HPV45	L2	PTDPSIVT	98	8						8413
HPV45	L2	PTDPSIVTL	98	9						8414
HPV45	L2	PTDPSIVTLV	98	10						8415
HPV45	L2	PTFTGTSGFEI	120	11						8416
HPV45	L2	PTNASITTT	420	8						8417
HPV45	L2	PTNASITTYI	420	10						8418
HPV45	L2	PTRPPVVI	86	8						8419
HPV45	L2	PTRPPVVIIEPV	86	11						8420
HPV45	L2	PTSGSHGYEEL	185	11						8421
HPV45	L2	PTSNVPSDFM	267	11						8422
HPV45	L2	PTVDSVSI	145	8						8423
HPV45	L2	PTVDSVSISST	145	11						8424
HPV45	L2	PTVRRVRGPRL	216	11						8425
HPV45	L2	PVGPTDPSI	95	9						8426
HPV45	L2	PVGPTDPSIV	95	10						8427
HPV45	L2	PVGPTDPSIVT	95	11						8428
HPV45	L2	PVPTFTGT	118	8						8429
HPV45	L2	PVVIIEPVGPT	90	10						8430
HPV45	L2	QQVRVSTSQFL	232	11						8431
HPV45	L2	QTFASSGSGT	198	10						8432
HPV45	L2	QTGEVSGNI	172	9						8433

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L2	QTGEVSGNIFV	172	11						8434
HPV45	L2	QVRVSTSQFL	233	10						8435
HPV45	L2	QVRVSTSQFLT	233	11						8436
HPV45	L2	RAARRKRA	5	8						8437
HPV45	L2	RAARRKRASA	5	10						8438
HPV45	L2	RAARRKRASAT	5	11						8439
HPV45	L2	RANQQVRV	229	8						8440
HPV45	L2	RANQQVRVST	229	10						8441
HPV45	L2	RASATDLYRT	11	10						8442
HPV45	L2	RIPYFFADGFV	451	11						8443
HPV45	L2	RLGQRATM	298	8						8444
HPV45	L2	RLGQRATMFT	298	10						8445
HPV45	L2	RLYSRANQQV	225	10						8446
HPV45	L2	RTCKQSGT	19	8						8447
HPV45	L2	RVHFYHDI	316	8						8448
HPV45	L2	RVHFYHDISPI	316	11						8449
HPV45	L2	RVRGPRLYSRA	220	11						8450
HPV45	L2	RVSTSQFL	235	8						8451
HPV45	L2	RVSTSQFLT	235	9						8452
HPV45	L2	SATDLYRT	13	8						8453
HPV45	L2	SATNDSL	339	8						8454
HPV45	L2	SATNDSLFDV	339	11						8455
HPV45	L2	SAWDVPIYT	394	9						8456
HPV45	L2	SIIEVPQT	166	8						8457
HPV45	L2	SIIEVPQTGEV	166	11						8458
HPV45	L2	SISSTST	151	8						8459
HPV45	L2	SISSTSTNPA	151	11						8460
HPV45	L2	SIVTLVEDSSV	102	11						8461
HPV45	L2	SLGIFLGGL	49	9						8462
HPV45	L2	SLGIFLGGLGI	49	11						8463
HPV45	L2	SLTMPSTA	374	8						8464
HPV45	L2	SLTMPSTAA	374	9						8465
HPV45	L2	SLVTFDNP	247	9						8466
HPV45	L2	SQFLTHPSSL	239	10						8467
HPV45	L2	SQFLTHPSSLV	239	11						8468
HPV45	L2	STAASSYSNV	379	10						8469
HPV45	L2	STAASSYSNVT	379	11						8470
HPV45	L2	STHKSFT	362	8						8471
HPV45	L2	STPLPTVRRV	212	10						8472
HPV45	L2	STSTNPA	154	8						8473
HPV45	L2	STSTPNAST	417	9						8474
HPV45	L2	STSTPNASTT	417	10						8475
HPV45	L2	STSTPNASTTT	417	11						8476
HPV45	L2	STTTYIGI	424	8						8477
HPV45	L2	STTTYIGHGT	424	11						8478
HPV45	L2	SVSISSTST	149	10						8479

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L2	SVVASGAPV	111	9						8480
HPV45	L2	SVVASGAPVPT	111	11						8481
HPV45	L2	TAASSYSNV	380	9						8482
HPV45	L2	TAASSYSNVT	380	10						8483
HPV45	L2	TAASSYSNVTV	380	11						8484
HPV45	L2	TLSFEPTSNV	262	10						8485
HPV45	L2	TLVEDSSV	105	8						8486
HPV45	L2	TLVEDSSVV	105	9						8487
HPV45	L2	TLVEDSSVVA	105	10						8488
HPV45	L2	TMFTRSGKQI	304	10						8489
HPV45	L2	ITLADKIL	38	8						8490
HPV45	L2	TTLSFEPT	261	8						8491
HPV45	L2	TTLSFEPTSNV	261	11						8492
HPV45	L2	TTPAVLDI	136	8						8493
HPV45	L2	TTPAVLDIT	136	9						8494
HPV45	L2	TTPAVLDITPT	136	11						8495
HPV45	L2	TTPTTHKSFT	359	11						8496
HPV45	L2	TTPAVLDI	135	9						8497
HPV45	L2	TTTPAVLDIT	135	10						8498
HPV45	L2	TTYIGHGT	425	10						8499
HPV45	L2	TTYIGHGT	426	9						8500
HPV45	L2	TVDSVSISST	146	10						8501
HPV45	L2	TVPLTSAWDV	389	10						8502
HPV45	L2	TVRFSLGQRA	293	11						8503
HPV45	L2	TVRRVRGPRL	217	10						8504
HPV45	L2	TVVDVGPT	80	8						8505
HPV45	L2	VASGAPVPT	113	9						8506
HPV45	L2	VASGAPVPTFT	113	11						8507
HPV45	L2	VIEPVGPT	92	8						8508
HPV45	L2	VINKVEGT	31	8						8509
HPV45	L2	VINKVEGTT	31	9						8510
HPV45	L2	VINKVEGTTL	31	10						8511
HPV45	L2	VINKVEGTTLA	31	11						8512
HPV45	L2	VLDITPTV	140	8						8513
HPV45	L2	VLDITPTVDSV	140	11						8514
HPV45	L2	VTFDNPAYEPL	249	11						8515
HPV45	L2	VTLEDSSV	104	9						8516
HPV45	L2	VTLEDSSVV	104	10						8517
HPV45	L2	VTLEDSSVVA	104	11						8518
HPV45	L2	VTVPLTSA	388	8						8519
HPV45	L2	VTVPLTSAWDV	388	11						8520
HPV45	L2	VVASGAPV	112	8						8521
HPV45	L2	VVASGAPVPT	112	10						8522
HPV45	L2	VVDVGTPTRPPV	81	11						8523
HPV45	L2	VVIEPVGPT	91	9						8524
HPV45	L2	YADFPAPA	350	8						8525

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV45	L2	YADFPFPAST	350	10						8526
HPV45	L2	YADFPFPASTI	350	11						8527
HPV45	L2	YIGHGTQYYL	428	11						8528
HPV45	L2	YTGPDIL	401	8						8529
HPV45	L2	YVPLGGRSNT	71	10						8530
HPV45	L2	YVPLGGRSNTV	71	11						8531
HPV56	E2	AEVQIAL	15	8						8532
HPV56	E2	AEVQIALES	15	11						8533
HPV56	E2	ALESSTI	21	8						8534
HPV56	E2	ALESSTI	21	9						8535
HPV56	E2	CLQVCKAKA	4	9						8536
HPV56	E2	CMQVVAWKYI	71	10						8537
HPV56	E2	CVTTHI	204	8						8538
HPV56	E2	CVTTHISDT	204	11						8539
HPV56	E2	DTCEELWL	39	8						8540
HPV56	E2	DTCEELWLT	39	9						8541
HPV56	E2	DVTSTYHWT	263	9						8542
HPV56	E2	DVTSTYHWTST	263	11						8543
HPV56	E2	EAKFGCKNI	117	10						8544
HPV56	E2	ETQNSFL	288	8						8545
HPV56	E2	ETQNSFLSHV	288	11						8546
HPV56	E2	ETVNEYNT	154	8						8547
HPV56	E2	ETVNEYNTHKT	154	11						8548
HPV56	E2	EVHMENESI	128	9						8549
HPV56	E2	EVQIALES	17	9						8550
HPV56	E2	EVQIALESST	17	11						8551
HPV56	E2	FLSHVKIPV	294	9						8552
HPV56	E2	FLSHVKIPVV	294	10						8553
HPV56	E2	FQKYKTLFV	254	9						8554
HPV56	E2	FQKYKTLFVDV	254	11						8555
HPV56	E2	FVDVTSTYHWT	261	11						8556
HPV56	E2	GIYYVIDGHKT	99	11						8557
HPV56	E2	GVDYRGIVV	94	10						8558
HPV56	E2	HAKCVTTHT	201	9						8559
HPV56	E2	HAKCVTTHTHI	201	11						8560
HPV56	E2	HISDTDN	210	8						8561
HPV56	E2	HILKGEPNRL	239	9						8562
HPV56	E2	HTHISDTDN	208	10						8563
HPV56	E2	HVKIPVVYRL	297	10						8564
HPV56	E2	HVKIPVVYRLV	297	11						8565
HPV56	E2	IALESST	20	8						8566
HPV56	E2	IALESST	20	9						8567
HPV56	E2	IALESSTI	20	10						8568
HPV56	E2	IITHYKDET	280	10						8569
HPV56	E2	ITHYKDET	281	9						8570
HPV56	E2	KACSAIEV	11	8						8571

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	E2	KACSAIEVQI	11	10						8572
HPV56	E2	KACSAIEVQIA	11	11						8573
HPV56	E2	KAKACSAI	9	8						8574
HPV56	E2	KAKACSAIEV	9	10						8575
HPV56	E2	KIPVYRL	299	8						8576
HPV56	E2	KIPVYRLV	299	9						8577
HPV56	E2	KTLFVDVT	258	8						8578
HPV56	E2	KTLFVDVTST	258	10						8579
HPV56	E2	KTPPVHL	233	8						8580
HPV56	E2	KTTTTST	163	8						8581
HPV56	E2	KTTTTTSTV	163	10						8582
HPV56	E2	KTYTDFEQA	108	11						8583
HPV56	E2	KVCSGVDRGI	90	11						8584
HPV56	E2	LQVCKAKA	5	8						8585
HPV56	E2	LQVCKAKACSA	5	11						8586
HPV56	E2	MQVVAWKYI	72	9						8587
HPV56	E2	MVPCQLQVCKA	1	10						8588
HPV56	E2	NTDSRSRSI	216	9						8589
HPV56	E2	NTHKTTTT	160	8						8590
HPV56	E2	NTHKTTTTT	160	9						8591
HPV56	E2	NTHKTTTTTST	160	11						8592
HPV56	E2	NVSPVETV	149	8						8593
HPV56	E2	PVETVNEYNT	152	10						8594
HPV56	E2	QIALESST	19	9						8595
HPV56	E2	QIALESSTT	19	10						8596
HPV56	E2	QIALESSTTI	19	11						8597
HPV56	E2	QVCKAKACSA	6	10						8598
HPV56	E2	QVCKAKACSAI	6	11						8599
HPV56	E2	SAIEVQIA	14	8						8600
HPV56	E2	SAIEVQIAL	14	9						8601
HPV56	E2	SIITHYKDET	279	11						8602
HPV56	E2	SIYCPDSV	135	8						8603
HPV56	E2	SIYCPDSVSST	135	11						8604
HPV56	E2	STCRYNVSPV	144	10						8605
HPV56	E2	STDNKNYSI	272	9						8606
HPV56	E2	STDNKNYSII	272	10						8607
HPV56	E2	STDNKNYSIIT	272	11						8608
HPV56	E2	STSVGNQDA	169	9						8609
HPV56	E2	STSVGNQDAV	169	10						8610
HPV56	E2	STSVGNQDAAV	169	11						8611
HPV56	E2	STTIYNNEWT	26	11						8612
HPV56	E2	STYHWTST	266	8						8613
HPV56	E2	SVGNQDAV	171	8						8614
HPV56	E2	SVGNQDAAV	171	9						8615
HPV56	E2	SVSSTCRYNV	141	10						8616
HPV56	E2	TIYKDET	282	8						8617

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	E2	TIYNNEEWT	28	9						8618
HPV56	E2	TIYNNEEWT	28	10						8619
HPV56	E2	TLFVDVTST	259	9						8620
HPV56	E2	TLRDTCEEL	36	9						8621
HPV56	E2	TLRDTCEELWL	36	11						8622
HPV56	E2	TQRNSFLSHV	289	10						8623
HPV56	E2	TTTHISDT	206	9						8624
HPV56	E2	TIYNNEEWT	27	10						8625
HPV56	E2	TIYNNEEWT	27	11						8626
HPV56	E2	TTSTSVGNQDA	167	11						8627
HPV56	E2	TTTTTSTV	165	8						8628
HPV56	E2	TTTTTSTSV	164	9						8629
HPV56	E2	TVNEYNTHKT	155	10						8630
HPV56	E2	TVNEYNTHKTT	155	11						8631
HPV56	E2	VQIALES	18	8						8632
HPV56	E2	VQIALES	18	10						8633
HPV56	E2	VQIALES	18	11						8634
HPV56	E2	VTSTYHWT	264	8						8635
HPV56	E2	VTSTYHWT	264	10						8636
HPV56	E2	VTTHISDT	205	10						8637
HPV56	E2	VVHLKGEPNRL	237	11						8638
HPV56	E2	WQVCSGV	88	8						8639
HPV56	E2	WTLRDTCEEL	35	10						8640
HPV56	E2	WTSTDNKNYSI	270	11						8641
HPV56	E2	YTDFEQEA	111	8						8642
HPV56	E2	YVHDGHKT	102	8						8643
HPV56	E2	YVHDGHKTYTT	102	11						8644
HPV56	E6	ATLESITKKQL	89	11						8645
HPV56	E6	AVCRVCLL	64	8						8646
HPV56	E6	CLGCWRQT	139	8						8647
HPV56	E6	CLLFYSKV	69	8						8648
HPV56	E6	CVYCKKEL	33	8						8649
HPV56	E6	CVYCKKELT	33	9						8650
HPV56	E6	CVYCKKELTRA	33	11						8651
HPV56	E6	EPLIDLRL	23	9						8652
HPV56	E6	ELTRAEVYNFA	39	11						8653
HPV56	E6	EVLEIPLI	20	8						8654
HPV56	E6	EVLEIPLIDL	20	10						8655
HPV56	E6	EVYNFACT	44	8						8656
HPV56	E6	EVYNFACTEL	44	10						8657
HPV56	E6	FACTELKL	48	8						8658
HPV56	E6	FACTELKLV	48	9						8659
HPV56	E6	GATLESIT	88	8						8660
HPV56	E6	HLIAHGWT	129	8						8661
HPV56	E6	HLSEVLEI	17	8						8662
HPV56	E6	HLSEVLEIPL	17	10						8663

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	E6	HLSEVLEIPLI	17	11						8664
HPV56	E6	IAHGWTGSCL	131	10						8665
HPV56	E6	ITKKQLCDL	94	9						8666
HPV56	E6	ITKKQLCDLL	94	10						8667
HPV56	E6	ITKKQLCDLLI	94	11						8668
HPV56	E6	KLVRDDFPYA	54	11						8669
HPV56	E6	KQLCDLLI	97	8						8670
HPV56	E6	LIAHGWTGSCL	130	11						8671
HPV56	E6	LIDRLSCV	26	9						8672
HPV56	E6	LIRCYRCQSP	103	11						8673
HPV56	E6	LITPEEKQL	113	8						8674
HPV56	E6	LTRAEVYNFA	40	10						8675
HPV56	E6	LVYRDDFPYA	55	10						8676
HPV56	E6	LVYRDDFPYAV	55	11						8677
HPV56	E6	PLIDRLSCV	25	10						8678
HPV56	E6	PLTPEEKQL	112	9						8679
HPV56	E6	PQERPRSL	8	8						8680
HPV56	E6	PQERPRSLHHL	8	11						8681
HPV56	E6	QTSREPREST	145	10						8682
HPV56	E6	QTSREPRESTV	145	11						8683
HPV56	E6	RAEVYNFA	42	8						8684
HPV56	E6	RAEVYNFACT	42	10						8685
HPV56	E6	RLSCVYCKKEL	30	11						8686
HPV56	E6	RQTSREPREST	144	11						8687
HPV56	E6	RVCLLFYSKV	67	10						8688
HPV56	E6	SITKKQLCDL	93	10						8689
HPV56	E6	SITKKQLCDLL	93	11						8690
HPV56	E6	SLHHLSEV	14	8						8691
HPV56	E6	SLHHLSEVL	14	9						8692
HPV56	E6	SLHHLSEVLEI	14	11						8693
HPV56	E6	SVYGATLESI	85	10						8694
HPV56	E6	SVYGATLESIT	85	11						8695
HPV56	E6	TLESITKKQL	90	10						8696
HPV56	E6	VLEIPLIDL	21	9						8697
HPV56	E6	VLEIPLIDLRL	21	11						8698
HPV56	E6	YAVCRVCL	63	8						8699
HPV56	E6	YAVCRVCLL	63	9						8700
HPV56	E7	ALTVCPL	93	8						8701
HPV56	E7	ALTVCPLCA	93	10						8702
HPV56	E7	DIQSTKEDL	75	9						8703
HPV56	E7	DIQSTKEDLRV	75	11						8704
HPV56	E7	DLQCNEQL	22	8						8705
HPV56	E7	DLRVVQQL	82	8						8706
HPV56	E7	DLRVVQQLL	82	9						8707
HPV56	E7	DLRVVQQLLM	82	10						8708
HPV56	E7	DVVLELTPQT	10	10						8709

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	E7	EIDLCNEQL	20	10						8710
HPV56	E7	ELTPQTEI	14	8						8711
HPV56	E7	ELTPQTEIDL	14	10						8712
HPV56	E7	FVQLDIQST	70	10						8713
HPV56	E7	GALTVTCPL	92	9						8714
HPV56	E7	GALTVTCPLCA	92	11						8715
HPV56	E7	HLQERPOQA	42	9						8716
HPV56	E7	HTCYLIHV	56	8						8717
HPV56	E7	HVPCCECKFV	62	10						8718
HPV56	E7	HVPCCECKFVV	62	11						8719
HPV56	E7	IQSTKEDL	76	8						8720
HPV56	E7	IQSTKEDLRV	76	10						8721
HPV56	E7	IQSTKEDLRVV	76	11						8722
HPV56	E7	KQHTCYLI	54	8						8723
HPV56	E7	KQHTCYLIHV	54	10						8724
HPV56	E7	KVPTLQDV	4	8						8725
HPV56	E7	KVPTLQDVV	4	9						8726
HPV56	E7	KVPTLQDVVL	4	10						8727
HPV56	E7	LLMGALT	89	8						8728
HPV56	E7	LLMGALTV	89	9						8729
HPV56	E7	LLMGALTVT	90	8						8730
HPV56	E7	LMGALTVT	90	11						8731
HPV56	E7	LMGALTVTCPL	90	8						8732
HPV56	E7	LQDVVLEL	8	9						8733
HPV56	E7	LQDVVLELT	8	8						8734
HPV56	E7	LQERPOQA	43	8						8735
HPV56	E7	LQERPOQARQA	43	11						8736
HPV56	E7	LTPQTEIDL	15	9						8737
HPV56	E7	LTVTCPLCA	94	9						8738
HPV56	E7	PQARQAKQHT	47	11						8739
HPV56	E7	PTLQDVVL	6	8						8740
HPV56	E7	PTLQDVVLEL	6	10						8741
HPV56	E7	PTLQDVVLELT	6	11						8742
HPV56	E7	QAKQHTCYL	52	9						8743
HPV56	E7	QAKQHTCYLI	52	10						8744
HPV56	E7	QARQAKQHT	49	9						8745
HPV56	E7	QLDIQSTKEDL	73	11						8746
HPV56	E7	QLLMGALT	88	8						8747
HPV56	E7	QLLMGALT	88	9						8748
HPV56	E7	QLLMGALT	88	10						8749
HPV56	E7	QARQAKQHT	48	10						8750
HPV56	E7	QQLLMGAL	87	8						8751
HPV56	E7	QQLLMGALT	87	9						8752
HPV56	E7	QQLLMGALT	87	10						8753
HPV56	E7	QQLLMGALT	87	11						8754
HPV56	E7	QQLLMGALT	87	11						8755
HPV56	E7	RQAKQHTCYL	51	10						8756
HPV56	E7	RQAKQHTCYLI	51	11						8757

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	E7	RVVQQLLM	84	8						8756
HPV56	E7	RVVQQLLMGA	84	10						8757
HPV56	E7	RVVQQLLMGAL	84	11						8758
HPV56	E7	STKEDLRV	78	8						8759
HPV56	E7	STKEDLRVV	78	9						8760
HPV56	E7	TLQDVVLEL	7	9						8761
HPV56	E7	TLQDVVLELT	7	10						8762
HPV56	E7	TVTCPLCA	95	8						8763
HPV56	E7	VLELTPQT	12	8						8764
HPV56	E7	VLELTPQTEI	12	10						8765
HPV56	E7	VQLDIQST	72	8						8766
HPV56	E7	VQQLLMGA	86	8						8767
HPV56	E7	VQQLLMGAL	86	9						8768
HPV56	E7	VQQLLMGALT	86	10						8769
HPV56	E7	VQQLLMGALT	86	11						8770
HPV56	E7	VVLELTPQT	11	9						8771
HPV56	E7	VVLELTPQTEI	11	11						8772
HPV56	E7	VVQLDIQST	71	9						8773
HPV56	E7	VVQQLLMGA	85	9						8774
HPV56	E7	VVQQLLMGAL	85	10						8775
HPV56	E7	VVQQLLMGALT	85	11						8776
HPV56	L1	AITCQREQPPT	458	11						8777
HPV56	L1	AMGEHWTKGA	198	10						8778
HPV56	L1	AMGEHWTKGAV	198	11						8779
HPV56	L1	AQHNNGI	350	8						8780
HPV56	L1	AQLFNKPYWL	338	10						8781
HPV56	L1	ATDSYVKRT	58	9						8782
HPV56	L1	ATDSYVKRTSI	58	11						8783
HPV56	L1	ATEQLSKYDA	381	10						8784
HPV56	L1	ATPSGSMI	327	8						8785
HPV56	L1	ATPSGSMIT	327	9						8786
HPV56	L1	ATSKRSA	514	8						8787
HPV56	L1	ATSKRSAPT	514	10						8788
HPV56	L1	ATSLDKYRYV	444	11						8789
HPV56	L1	ATWRPSKNV	37	10						8790
HPV56	L1	AVATSKRSA	512	10						8791
HPV56	L1	AVCKSTQV	207	8						8792
HPV56	L1	AVCKSTQVT	207	9						8793
HPV56	L1	AVCKSTQVTT	207	10						8794
HPV56	L1	AVGHPYYSV	79	9						8795
HPV56	L1	AVGHPYYSVT	79	10						8796
HPV56	L1	AVNVFPFL	26	9						8797
HPV56	L1	AVNVFPFLQM	26	11						8798
HPV56	L1	CIFLDVGA	19	8						8799
HPV56	L1	CIFLDVGAV	19	9						8800
HPV56	L1	CIFLDVGAVNV	19	11						8801

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L1	CIVGCTPA	191	8						8802
HPV56	L1	CIVGCTPAM	191	9						8803
HPV56	L1	CQREQPT	461	8						8804
HPV56	L1	CTPAMGEHWT	195	10						8805
HPV56	L1	DARKINQYL	389	9						8806
HPV56	L1	DAYGDSMWFFYL	274	11						8807
HPV56	L1	DMIDTGFGA	233	9						8808
HPV56	L1	DMIDTGFGAM	233	10						8809
HPV56	L1	DQERLVWA	128	8						8810
HPV56	L1	DQERLVWACV	128	10						8811
HPV56	L1	DQFPLGRKFL	493	10						8812
HPV56	L1	DQFPLGRKFLM	493	11						8813
HPV56	L1	DTESNLA	162	8						8814
HPV56	L1	DTGFGAMDFKV	236	11						8815
HPV56	L1	DTTRSTNM	369	8						8816
HPV56	L1	DTTRSTNMT	369	9						8817
HPV56	L1	DTTRSTNMTI	369	10						8818
HPV56	L1	DVGAVNVFPI	23	10						8819
HPV56	L1	DVNLQDSFST	481	10						8820
HPV56	L1	EAQLFNKPYWL	337	11						8821
HPV56	L1	ELQFVFQL	404	8						8822
HPV56	L1	ELQFVFQLCKI	404	11						8823
HPV56	L1	EQLSKYDA	383	8						8824
HPV56	L1	EQLSKYDARKI	383	11						8825
HPV56	L1	EQPTEKQDPL	464	11						8826
HPV56	L1	ETIPAELYL	303	9						8827
HPV56	L1	EVGRGQPL	140	8						8828
HPV56	L1	EVGRGQPLGA	140	10						8829
HPV56	L1	EVMAYLHNM	419	9						8830
HPV56	L1	EVMAYLHNMNA	419	11						8831
HPV56	L1	EVPLDIVQST	253	10						8832
HPV56	L1	FARHYFNRA	290	9						8833
HPV56	L1	FLDVGAVNV	21	9						8834
HPV56	L1	FQLCKITL	409	8						8835
HPV56	L1	FQLCKITLSA	409	10						8836
HPV56	L1	FVFLCKI	407	8						8837
HPV56	L1	FVFLCKIT	407	9						8838
HPV56	L1	FVFLCKITL	407	10						8839
HPV56	L1	FVTVVDIT	364	8						8840
HPV56	L1	FVTVVDITRST	364	11						8841
HPV56	L1	GAGLSGHPL	148	9						8842
HPV56	L1	GAMDFKVL	240	8						8843
HPV56	L1	GAVCKSTQV	206	9						8844
HPV56	L1	GAVCKSTQVT	206	10						8845
HPV56	L1	GAVCKSTQVTT	206	11						8846
HPV56	L1	GAVNVFPI	25	8						8847

HPV56 "GAG" 625-746

Table VIII

A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L1	GAENVFIPL	25	10						8848
HPV56	L1	GICWGNQL	356	8						8849
HPV56	L1	GICWGNQLFV	356	10						8850
HPV56	L1	GICWGNQLFVT	356	11						8851
HPV56	L1	GLCIFLDV	17	8						8852
HPV56	L1	GLCIFLDVGA	17	10						8853
HPV56	L1	GLCIFLDVGAV	17	11						8854
HPV56	L1	GLEVGRGQPL	138	10						8855
HPV56	L1	GLSGHPLFNRL	150	11						8856
HPV56	L1	GLSPPVAT	438	8						8857
HPV56	L1	GLSPPVATSL	438	10						8858
HPV56	L1	GQPLGAGL	144	8						8859
HPV56	L1	GTRSKPAV	506	8						8860
HPV56	L1	GTRSKPAVA	506	9						8861
HPV56	L1	GTRSKPAVAT	506	10						8862
HPV56	L1	HAGSSRL	71	8						8863
HPV56	L1	HAGSSRLLA	71	9						8864
HPV56	L1	HAGSSRLLA	71	10						8865
HPV56	L1	HVEEYELQFV	399	10						8866
HPV56	L1	ITCQREQPPT	459	10						8867
HPV56	L1	ITLSAEVM	414	8						8868
HPV56	L1	ITLSAEVMA	414	9						8869
HPV56	L1	ITLSAEVMAYL	414	11						8870
HPV56	L1	IVGCTPAM	192	8						8871
HPV56	L1	KAEPPLDI	251	8						8872
HPV56	L1	KAEPPLDIV	251	9						8873
HPV56	L1	KINQYLRHV	392	9						8874
HPV56	L1	KITLSAEV	413	8						8875
HPV56	L1	KITLSAEVM	413	9						8876
HPV56	L1	KITLSAEVMA	413	10						8877
HPV56	L1	KMSADAYGDSM	270	11						8878
HPV56	L1	KQTQLCIV	186	8						8879
HPV56	L1	KQTQLCIVGCT	186	11						8880
HPV56	L1	KTNIPKUSA	93	9						8881
HPV56	L1	KVGETIPA	300	8						8882
HPV56	L1	KVGETIPAE	300	10						8883
HPV56	L1	KVLQESKA	245	8						8884
HPV56	L1	KVLQESKAEV	245	10						8885
HPV56	L1	KVSAYQYRV	98	9						8886
HPV56	L1	KVVATDSYV	55	9						8887
HPV56	L1	KVYLPPTPV	45	9						8888
HPV56	L1	LAKYKFWDV	474	9						8889
HPV56	L1	LAKYKFWDVNL	474	11						8890
HPV56	L1	LALINTPI	222	8						8891
HPV56	L1	LAVGHPYYSV	78	10						8892
HPV56	L1	LAVGHPYYSVT	78	11						8893

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L1	LINTPIEDGDM	224	11						8894
HPV56	L1	LLAVGHPYYSV	77	11						8895
HPV56	L1	LLEDWNIGL	431	9						8896
HPV56	L1	LMQLGTRSKPA	502	11						8897
HPV56	L1	LQDSFSTD	484	9						8898
HPV56	L1	LQESKAEV	247	8						8899
HPV56	L1	LQESKAEP	247	10						8900
HPV56	L1	LQFVFLCKI	405	10						8901
HPV56	L1	LQFVFLCKIT	405	11						8902
HPV56	L1	LQRAQGHNGI	347	11						8903
HPV56	L1	LVWACVGL	132	8						8904
HPV56	L1	LVWACVGL	132	10						8905
HPV56	L1	MATWRPSENKV	36	11						8906
HPV56	L1	MAYLHNMNA	421	9						8907
HPV56	L1	MAYLHNMNANL	421	11						8908
HPV56	L1	MIDTGFGA	234	8						8909
HPV56	L1	MIDTGFGAM	234	9						8910
HPV56	L1	MITSEAQL	333	8						8911
HPV56	L1	MMPLPMYI	1	8						8912
HPV56	L1	MMYIYRDPPL	5	10						8913
HPV56	L1	MLGTRSKPA	503	10						8914
HPV56	L1	MLGTRSKPAV	503	11						8915
HPV56	L1	MTISTATEQL	376	10						8916
HPV56	L1	NANLLEDWNI	428	10						8917
HPV56	L1	NIGLSPV	436	8						8918
HPV56	L1	NIGLSPVA	436	9						8919
HPV56	L1	NIGLSPVAT	436	10						8920
HPV56	L1	NISVDGKQT	180	9						8921
HPV56	L1	NISVDGKQTQL	180	11						8922
HPV56	L1	NIYNPDQERL	123	10						8923
HPV56	L1	NIYNPDQERLV	123	11						8924
HPV56	L1	NLANNVI	167	8						8925
HPV56	L1	NLLEDWNI	430	8						8926
HPV56	L1	NLLEDWNIGL	430	10						8927
HPV56	L1	NLQDSFST	483	8						8928
HPV56	L1	NLQDSFSTD	483	10						8929
HPV56	L1	NMTISTAT	375	8						8930
HPV56	L1	NMTISTATEQL	375	11						8931
HPV56	L1	NQLFVTIV	361	8						8932
HPV56	L1	NQLFVTIVDT	361	10						8933
HPV56	L1	NQLFVTIVDTT	361	11						8934
HPV56	L1	NTKTNIKPV	91	9						8935
HPV56	L1	NTKTNIKVSA	91	11						8936
HPV56	L1	NTPIEDGDM	226	9						8937
HPV56	L1	NTPIEDGDMI	226	10						8938
HPV56	L1	NVFPFLQM	28	9						8939

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L1	NVFIPLQMA	28	10						8940
HPV56	L1	NVFIPLQMAT	28	11						8941
HPV56	L1	NVIEDSRDNI	172	10						8942
HPV56	L1	PAMGEHWT	197	8						8943
HPV56	L1	PAMGEHWTKGA	197	11						8944
HPV56	L1	PAVATSKKRSA	511	11						8945
HPV56	L1	PIEDGDMI	228	8						8946
HPV56	L1	PIEDGDMIDT	228	10						8947
HPV56	L1	PIFLQMAT	31	8						8948
HPV56	L1	PLAKYKFDV	473	10						8949
HPV56	L1	PLALINTPI	221	9						8950
HPV56	L1	PLDIVQST	255	8						8951
HPV56	L1	PLFNRLDDT	155	9						8952
HPV56	L1	PLGAGLSGHPL	146	11						8953
HPV56	L1	PLGRKFLM	496	8						8954
HPV56	L1	PLGRKFLMQL	496	10						8955
HPV56	L1	PLHYGLCI	13	8						8956
HPV56	L1	PLHYGLCIFL	13	10						8957
HPV56	L1	PMMYIYRDPL	4	11						8958
HPV56	L1	PTEKQDPL	467	8						8959
HPV56	L1	PTEKQDPLA	467	9						8960
HPV56	L1	PTPVSKVV	50	8						8961
HPV56	L1	PTPVSKVVA	50	9						8962
HPV56	L1	PTPVSKVVAT	50	10						8963
HPV56	L1	PTSTSTPA	522	8						8964
HPV56	L1	PVSKVVAT	52	8						8965
HPV56	L1	QLCIVGCT	189	8						8966
HPV56	L1	QLCIVGCTPA	189	10						8967
HPV56	L1	QLCIVGCTPAM	189	11						8968
HPV56	L1	QLCKITLSA	410	9						8969
HPV56	L1	QLCKITLSAEV	410	11						8970
HPV56	L1	QLFARHYFNRA	288	11						8971
HPV56	L1	QLFNKPYWL	339	9						8972
HPV56	L1	QLFVTVVDIT	362	9						8973
HPV56	L1	QLFVTVVDIT	362	10						8974
HPV56	L1	QLGTRSKPA	504	9						8975
HPV56	L1	QLGTRSKPAV	504	10						8976
HPV56	L1	QLGTRSKPAVA	504	11						8977
HPV56	L1	QLSKYDARKI	384	10						8978
HPV56	L1	QTQLCIVGCT	187	10						8979
HPV56	L1	QVTTGDCPPL	213	10						8980
HPV56	L1	QVTTGDCPPLA	213	11						8981
HPV56	L1	RAGKVGET	297	8						8982
HPV56	L1	RAGKVGETI	297	9						8983
HPV56	L1	RAGKVGETIPA	297	11						8984
HPV56	L1	RAQGHNNGI	349	9						8985

0101020304050607080910111213141516171819202122232425262728293031

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L1	RLDDTESSNL	159	10						8986
HPV56	L1	RLDDTESSNLA	159	11						8987
HPV56	L1	RLDPNKFGL	110	10						8988
HPV56	L1	RLVWACVGL	131	9						8989
HPV56	L1	RLVWACVGL	131	11						8990
HPV56	L1	RTSIFYHA	65	8						8991
HPV56	L1	SADAYGDSM	272	9						8992
HPV56	L1	SAEVMAYL	417	8						8993
HPV56	L1	SAEVMAYLHNM	417	11						8994
HPV56	L1	SAPTSTST	520	8						8995
HPV56	L1	SAPTSTSTPA	520	10						8996
HPV56	L1	SAYQYRVERV	100	10						8997
HPV56	L1	SIFYHAGSSRL	67	11						8998
HPV56	L1	SLEDKYRYV	446	9						8999
HPV56	L1	SMITSEAO	332	9						9000
HPV56	L1	SMWFYLRREQL	279	11						9001
HPV56	L1	STCKYPDYL	261	9						9002
HPV56	L1	STCKYPDYLKM	261	11						9003
HPV56	L1	STDLDQFPL	489	9						9004
HPV56	L1	STNMIST	373	8						9005
HPV56	L1	STNMIST	373	9						9006
HPV56	L1	STNMISTAT	373	10						9007
HPV56	L1	SVDGKQTQL	182	9						9008
HPV56	L1	SVDGKQTQLCI	182	11						9009
HPV56	L1	SVTKDNTKT	86	9						9010
HPV56	L1	SVTKDNTKTN	86	11						9011
HPV56	L1	SVYVATPSGSM	323	11						9012
HPV56	L1	TATEQLSKYDA	380	11						9013
HPV56	L1	TIPAELEYL	304	8						9014
HPV56	L1	TISTATEQL	377	9						9015
HPV56	L1	TLSEAEVMA	415	8						9016
HPV56	L1	TLSEAEVMAYL	415	10						9017
HPV56	L1	TQLCIVGCT	188	9						9018
HPV56	L1	TQLCIVGCTPA	188	11						9019
HPV56	L1	TQVTTGDCPPL	212	11						9020
HPV56	L1	TTGDCPPL	215	8						9021
HPV56	L1	TTGDCPPLA	215	9						9022
HPV56	L1	TTGDCPPLAL	215	10						9023
HPV56	L1	TTGDCPPLALI	215	11						9024
HPV56	L1	TTRSTNMT	370	8						9025
HPV56	L1	TTRSTNMTI	370	9						9026
HPV56	L1	TTRSTNMTIST	370	11						9027
HPV56	L1	TVVDTTTRST	366	9						9028
HPV56	L1	TVVDTTTRSTNM	366	11						9029
HPV56	L1	VATDSYVKRT	57	10						9030
HPV56	L1	VATPSGSM	326	8						9031

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L1	VATPSGSMI	326	9						9032
HPV56	L1	VATPSGSMIT	326	10						9033
HPV56	L1	VATSKKRS	513	9						9034
HPV56	L1	VATSKKRSAPT	513	11						9035
HPV56	L1	VIEDSRDNI	173	9						9036
HPV56	L1	VIEDSRDNISV	173	11						9037
HPV56	L1	VLQESKAEV	246	9						9038
HPV56	L1	VLQESKAEVPL	246	11						9039
HPV56	L1	VMAYLHNM	420	8						9040
HPV56	L1	VMAYLHNMNA	420	10						9041
HPV56	L1	VQSTCKYPDYL	259	11						9042
HPV56	L1	VTKDNTKT	87	8						9043
HPV56	L1	VTKDNTKTNI	87	10						9044
HPV56	L1	VTGDCPPL	214	9						9045
HPV56	L1	VTGDCPPLA	214	10						9046
HPV56	L1	VTGDCPPLAL	214	11						9047
HPV56	L1	VTVDTRT	365	10						9048
HPV56	L1	VVATDSYV	56	8						9049
HPV56	L1	VVATDSYVKRT	56	11						9050
HPV56	L1	VVDTRT	367	8						9051
HPV56	L1	VVDTRSTNM	367	10						9052
HPV56	L1	VVDTRSTNMT	367	11						9053
HPV56	L1	WACVGLV	134	8						9054
HPV56	L1	WTKGAVCKST	203	10						9055
HPV56	L1	YIYRDPPL	7	8						9056
HPV56	L1	YLHNMNANL	423	9						9057
HPV56	L1	YLHNMNANLL	423	10						9058
HPV56	L1	YLKMSADA	268	8						9059
HPV56	L1	YLPPTPVSKV	47	10						9060
HPV56	L1	YLPPTPVSKVV	47	11						9061
HPV56	L1	YLRHVEEYEL	396	10						9062
HPV56	L1	YLRREQLFA	283	9						9063
HPV56	L1	YQYRVFRV	102	8						9064
HPV56	L1	YQYRVFRVRL	102	10						9065
HPV56	L1	YVATPSGSM	325	9						9066
HPV56	L1	YVATPSGSMI	325	10						9067
HPV56	L1	YVATPSGSMIT	325	11						9068
HPV56	L1	YVKRTSIFYHA	62	11						9069
HPV56	L1	YVRSTAIT	453	8						9070
HPV56	L2	AAPRLYRKA	222	9						9071
HPV56	L2	ALHRPAFT	281	8						9072
HPV56	L2	ALHRPAFTT	281	9						9073
HPV56	L2	AQAEIEIM	327	8						9074
HPV56	L2	AQAEIEIMQPL	327	11						9075
HPV56	L2	ATIQTTRGT	303	9						9076
HPV56	L2	ATIQTTRGTQI	303	11						9077

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	ATLVSADNPL	246	10						9078
HPV56	L2	ATPSAHLPI	367	9						9079
HPV56	L2	ATQLYKTKL	14	10						9080
HPV56	L2	ATRRKRASA	6	9						9081
HPV56	L2	ATRRKRASAT	6	10						9082
HPV56	L2	AVHSGSGTEPI	201	10						9083
HPV56	L2	AVLDITPT	139	8						9084
HPV56	L2	AVLDITPTSST	139	11						9085
HPV56	L2	DISPIAQA	322	8						9086
HPV56	L2	DISPIAQAEI	322	11						9087
HPV56	L2	DITPTSST	142	8						9088
HPV56	L2	DITPTSSTV	142	9						9089
HPV56	L2	DITPTSSTVHV	142	11						9090
HPV56	L2	DIVLPTGPST	406	10						9091
HPV56	L2	DIYANIDDEA	349	10						9092
HPV56	L2	DTSLAFSPSGV	260	11						9093
HPV56	L2	DVTHDVYI	425	8						9094
HPV56	L2	DVTPARPPI	83	9						9095
HPV56	L2	DVTPARPPIV	83	10						9096
HPV56	L2	DVTPARPPIVV	83	11						9097
HPV56	L2	DVVKIEQKT	30	10						9098
HPV56	L2	DVYIQGSFA	429	10						9099
HPV56	L2	DVYIQGSFAL	429	11						9100
HPV56	L2	EAPGLSSQSV	357	10						9101
HPV56	L2	EAPGLSSQSV	357	11						9102
HPV56	L2	EAPQTGEV	169	8						9103
HPV56	L2	EIEMQPLL	331	8						9104
HPV56	L2	EIEMQPLLSA	331	10						9105
HPV56	L2	EIPMQTFA	194	8						9106
HPV56	L2	EIPMQTFV	194	9						9107
HPV56	L2	EITSSSTT	129	8						9108
HPV56	L2	EITSSSTT	129	9						9109
HPV56	L2	EITSSSTTTPA	129	11						9110
HPV56	L2	EMQPLLSA	333	8						9111
HPV56	L2	EQKTWADKI	36	9						9112
HPV56	L2	EQKTWADKIL	36	10						9113
HPV56	L2	ETPFYSGPDI	398	10						9114
HPV56	L2	ETPFYSGPDIV	398	11						9115
HPV56	L2	EVSGNILI	175	8						9116
HPV56	L2	EVSGNILIST	175	10						9117
HPV56	L2	FADGDVAA	457	8						9118
HPV56	L2	FASNTTNV	382	8						9119
HPV56	L2	FASNTTNVT	382	9						9120
HPV56	L2	FASNTTNVTA	382	10						9121
HPV56	L2	FAVHSGST	200	8						9122
HPV56	L2	FAVHSGSGTEPI	200	11						9123

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	FIDPPVIEA	162	9						9124
HPV56	L2	FLDRPATL	241	8						9125
HPV56	L2	FLDRPATLV	241	9						9126
HPV56	L2	FLDRPATLVSA	241	11						9127
HPV56	L2	FMNIVALHRPA	276	11						9128
HPV56	L2	FQQVKVTDPA	231	10						9129
HPV56	L2	FTSGGFEI	122	9						9130
HPV56	L2	FTSGGFEIT	122	10						9131
HPV56	L2	FTTRRGV	287	8						9132
HPV56	L2	FTYFGGLGI	51	9						9133
HPV56	L2	FTYFGGLGIGT	51	11						9134
HPV56	L2	FVQSPYDV	418	9						9135
HPV56	L2	FVQSPYDVT	418	10						9136
HPV56	L2	GAGIPNFT	116	8						9137
HPV56	L2	GARVHYYYDI	314	10						9138
HPV56	L2	GIHSYEEI	188	8						9139
HPV56	L2	GIHSYEEIPM	188	10						9140
HPV56	L2	GLIGTGT	56	8						9141
HPV56	L2	GLSSQSA	360	8						9142
HPV56	L2	GLSSQSVAT	360	9						9143
HPV56	L2	GLYDIYANI	346	9						9144
HPV56	L2	GTCPEDVV	25	8						9145
HPV56	L2	GTCPEDVVNKI	25	11						9146
HPV56	L2	GTEPISST	206	8						9147
HPV56	L2	GTEPISSTPI	206	10						9148
HPV56	L2	GTGSGGRA	62	8						9149
HPV56	L2	GTGSGGRAGYV	62	11						9150
HPV56	L2	GTGTGSGGRA	60	10						9151
HPV56	L2	GTQIGARV	310	8						9152
HPV56	L2	GVAPDPDFM	269	9						9153
HPV56	L2	GVAPDPDFMNI	269	11						9154
HPV56	L2	GVRFSRLGRKA	293	11						9155
HPV56	L2	HITNPLFI	156	8						9156
HPV56	L2	HLPIKPST	372	8						9157
HPV56	L2	HLPIKPSTL	372	9						9158
HPV56	L2	HVSSSTHIT	151	8						9159
HPV56	L2	HVSSSTHITNPL	151	11						9160
HPV56	L2	IAAPRLYRKA	221	10						9161
HPV56	L2	IAQAEIEIEM	326	9						9162
HPV56	L2	ILISTPTSGI	180	10						9163
HPV56	L2	ILQWGSIFT	44	9						9164
HPV56	L2	IQGSSFAL	432	8						9165
HPV56	L2	IQGSSFALWPV	432	11						9166
HPV56	L2	IQTRRGTIQI	305	9						9167
HPV56	L2	IQTRRGTIQIGA	305	11						9168
HPV56	L2	ITNPLFIDPPV	157	11						9169

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	ITPTSSTV	143	8						9170
HPV56	L2	ITPTSSTVHV	143	10						9171
HPV56	L2	ITSSSTTT	130	8						9172
HPV56	L2	ITSSSTTTTPA	130	10						9173
HPV56	L2	ITSSSTTTTAPV	130	11						9174
HPV56	L2	IVALHRPA	279	8						9175
HPV56	L2	IVALHRPAFT	279	10						9176
HPV56	L2	IVALHRPAFTT	279	11						9177
HPV56	L2	IVDVTPARPPI	81	11						9178
HPV56	L2	IVLPTGPST	407	9						9179
HPV56	L2	IVTLVEESSV	103	10						9180
HPV56	L2	IVTLVEESSVI	103	11						9181
HPV56	L2	IVVESVGPT	91	9						9182
HPV56	L2	KAFQQVKV	229	8						9183
HPV56	L2	KAFQQVKVT	229	9						9184
HPV56	L2	KATIQTTRGT	302	10						9185
HPV56	L2	KIEQKTWA	34	8						9186
HPV56	L2	KIEQKTWADKI	34	11						9187
HPV56	L2	KILQWGSL	43	8						9188
HPV56	L2	KILQWGSLFT	43	10						9189
HPV56	L2	KLSGTCPEDEV	22	10						9190
HPV56	L2	KLSGTCPEDEVV	22	11						9191
HPV56	L2	KTCKLSGT	19	8						9192
HPV56	L2	KTWADKIL	38	8						9193
HPV56	L2	KVTDPAFL	235	8						9194
HPV56	L2	LAFSPGV	263	8						9195
HPV56	L2	LAFSPSGVA	263	9						9196
HPV56	L2	LISITPSGI	181	9						9197
HPV56	L2	LLSANNISFDGL	337	11						9198
HPV56	L2	LQWGSLFT	45	8						9199
HPV56	L2	LVEESSVI	106	8						9200
HPV56	L2	LVSADNPL	248	8						9201
HPV56	L2	MQTFVHSGST	197	11						9202
HPV56	L2	NIDDEAPGL	353	9						9203
HPV56	L2	NILISTPT	179	8						9204
HPV56	L2	NILISTPTSGI	179	11						9205
HPV56	L2	NIVALHRPA	278	9						9206
HPV56	L2	NIVALHRPAFT	278	11						9207
HPV56	L2	NTTNVTAPL	385	9						9208
HPV56	L2	NVTAPLGNV	388	9						9209
HPV56	L2	PAFLDRPA	239	8						9210
HPV56	L2	PAFLDRPAT	239	9						9211
HPV56	L2	PAFLDRPATL	239	10						9212
HPV56	L2	PAFLDRPATLV	239	11						9213
HPV56	L2	PAFTTRRGV	285	10						9214
HPV56	L2	PARPPIVV	86	8						9215

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	PARPIVVESV	86	11						9216
HPV56	L2	PATLVSADNPL	245	11						9217
HPV56	L2	PAVLDTTPT	138	9						9218
HPV56	L2	PIAQAEI	325	8						9219
HPV56	L2	PIAQAEIEM	325	10						9220
HPV56	L2	PIKFSTLSFA	374	10						9221
HPV56	L2	PIPGFRI	214	8						9222
HPV56	L2	PIPGFRIA	214	9						9223
HPV56	L2	PIPGFRIA	214	10						9224
HPV56	L2	PIVVESVGPT	90	10						9225
HPV56	L2	PLFEGTDI	254	8						9226
HPV56	L2	PLFEGTDTSL	254	10						9227
HPV56	L2	PLFEGTDTSLA	254	11						9228
HPV56	L2	PLFIDPPV	160	8						9229
HPV56	L2	PLFIDPPVI	160	9						9230
HPV56	L2	PLFIDPPVIEA	160	11						9231
HPV56	L2	PLGNVWET	392	8						9232
HPV56	L2	PLGSRPST	73	8						9233
HPV56	L2	PLGSRPSTI	73	9						9234
HPV56	L2	PLGSRPSTIV	73	10						9235
HPV56	L2	PQSPYDVT	420	8						9236
HPV56	L2	PQSPYDVTHDV	420	11						9237
HPV56	L2	PQTGEVSGNI	171	10						9238
HPV56	L2	PQTGEVSGNIL	171	11						9239
HPV56	L2	PTDPSIVT	98	8						9240
HPV56	L2	PTDPSIVTL	98	9						9241
HPV56	L2	PTDPSIVTLV	98	10						9242
HPV56	L2	PTGPSTWPFV	410	10						9243
HPV56	L2	PTSGIHSYEEI	185	11						9244
HPV56	L2	PTSSTVHV	145	8						9245
HPV56	L2	PTSSTVHVSST	145	11						9246
HPV56	L2	PVIEAPQT	166	8						9247
HPV56	L2	PVIEAPQTGEV	166	11						9248
HPV56	L2	QAEIEMQPL	328	10						9249
HPV56	L2	QAEIEMQPLL	328	11						9250
HPV56	L2	QLYKTCKL	16	8						9251
HPV56	L2	QLYKTCKLSGT	16	11						9252
HPV56	L2	QQVKVTDPA	232	9						9253
HPV56	L2	QQVKVTDPAFL	232	11						9254
HPV56	L2	QTFVHSGT	198	10						9255
HPV56	L2	QTGEVSGNI	172	9						9256
HPV56	L2	QTGEVSGNIL	172	10						9257
HPV56	L2	QTGEVSGNLI	172	11						9258
HPV56	L2	QTRRGTOI	306	8						9259
HPV56	L2	QTRRGTOIGA	306	10						9260
HPV56	L2	QVKVTDPA	233	8						9261

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	QVKVTDPAFL	233	10						9262
HPV56	L2	RASATQLYKT	11	10						9263
HPV56	L2	RATRRKRA	5	8						9264
HPV56	L2	RATRRKRASA	5	10						9265
HPV56	L2	RATRRKRASAT	5	11						9266
HPV56	L2	RIAAPRLYRKA	220	11						9267
HPV56	L2	RIPYFFADGDV	452	11						9268
HPV56	L2	RLGRKATI	298	8						9269
HPV56	L2	RLGRKATIQT	298	10						9270
HPV56	L2	RLYRKAFQVQV	225	10						9271
HPV56	L2	RVHYYYDI	316	8						9272
HPV56	L2	RVHYYYDISPI	316	11						9273
HPV56	L2	SADNPLFEGT	250	10						9274
HPV56	L2	SAHLPIKPST	370	10						9275
HPV56	L2	SAHLPIKPSTL	370	11						9276
HPV56	L2	SANNSFDGL	339	9						9277
HPV56	L2	SATQLYKT	13	8						9278
HPV56	L2	SATQLYKTCKL	13	11						9279
HPV56	L2	SIVTLVEESSV	102	11						9280
HPV56	L2	SLAFSPGV	262	9						9281
HPV56	L2	SLAFSPGVA	262	10						9282
HPV56	L2	SLTFYFGL	49	9						9283
HPV56	L2	SLTFYFGLGI	49	11						9284
HPV56	L2	SQSVATPSA	363	9						9285
HPV56	L2	SQSVATPSAHL	363	11						9286
HPV56	L2	STHITNPL	154	8						9287
HPV56	L2	STHITNPLFI	154	10						9288
HPV56	L2	STIVDVTPA	79	9						9289
HPV56	L2	STLSEASNT	378	9						9290
HPV56	L2	STLSEASNTT	378	10						9291
HPV56	L2	STPIGFRRI	212	10						9292
HPV56	L2	STPIGFRRIA	212	11						9293
HPV56	L2	STTTPAVL	134	8						9294
HPV56	L2	STTTPAVLDI	134	10						9295
HPV56	L2	STTTPAVLDIT	134	11						9296
HPV56	L2	STVHV/SST	148	8						9297
HPV56	L2	STVHV/SSTII	148	10						9298
HPV56	L2	STVHV/SSTHIT	148	11						9299
HPV56	L2	SVATPSAHL	365	9						9300
HPV56	L2	SVATPSAHLPI	365	11						9301
HPV56	L2	SVGPTDPSI	95	9						9302
HPV56	L2	SVGPTDPSIV	95	10						9303
HPV56	L2	SVGPTDPSIVT	95	11						9304
HPV56	L2	SVIESGAGI	111	9						9305
HPV56	L2	TAPLGNVWET	390	10						9306
HPV56	L2	TIQTRRGIT	304	8						9307

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	TIQTRGTQI	304	10						9308
HPV56	L2	TIVDVTPA	80	8						9309
HPV56	L2	TLSFASNT	379	8						9310
HPV56	L2	TLSFASNTT	379	9						9311
HPV56	L2	TLSFASNTTNV	379	11						9312
HPV56	L2	TLVEESSV	105	8						9313
HPV56	L2	TLVEESSVI	105	9						9314
HPV56	L2	TLVSADNPL	247	9						9315
HPV56	L2	TQLYKTKKL	15	9						9316
HPV56	L2	TTNVTAPL	386	8						9317
HPV56	L2	TTNVTAPLGNV	386	11						9318
HPV56	L2	TTPAVLDI	136	8						9319
HPV56	L2	TTPAVLDT	136	9						9320
HPV56	L2	TTPAVLDTPT	136	11						9321
HPV56	L2	TTTPAVLDI	135	9						9322
HPV56	L2	TTTPAVLDIT	135	10						9323
HPV56	L2	TVHVSSTHI	149	9						9324
HPV56	L2	TVHVSSTHIT	149	10						9325
HPV56	L2	VAHRATRRKRA	2	11						9326
HPV56	L2	VALHRAFT	280	9						9327
HPV56	L2	VALHRPAFTT	280	10						9328
HPV56	L2	VAPDPDFM	270	8						9329
HPV56	L2	VAPDPDFMNI	270	10						9330
HPV56	L2	VAPDPDFMNIV	270	11						9331
HPV56	L2	VATPSAHL	366	8						9332
HPV56	L2	VATPSAHLPI	366	10						9333
HPV56	L2	VIEAPQTGEV	167	10						9334
HPV56	L2	VIESGAGI	112	8						9335
HPV56	L2	VLDITPTSST	140	10						9336
HPV56	L2	VLDITPTSSTV	140	11						9337
HPV56	L2	VLPTGPST	408	8						9338
HPV56	L2	VTAPLGNV	389	8						9339
HPV56	L2	VTAPLGNVWET	389	11						9340
HPV56	L2	VTDPAFIDRPA	236	11						9341
HPV56	L2	VTLEESSV	104	9						9342
HPV56	L2	VTLEESSVI	104	10						9343
HPV56	L2	VTARPPI	84	8						9344
HPV56	L2	VTARPPIV	84	9						9345
HPV56	L2	VTARPPIVV	84	10						9346
HPV56	L2	VVESVGT	92	8						9347
HPV56	L2	VVNKIEQKT	31	9						9348
HPV56	L2	VVNKIEQKTWA	31	11						9349
HPV56	L2	WADKILQWGS	40	11						9350
HPV56	L2	YANIDDEA	351	8						9351
HPV56	L2	YANIDDEAPGL	351	11						9352
HPV56	L2	YIQSSFA	431	8						9353

Table VIII
A02 Supermotif Peptides with Binding Information

Type	Protein	Sequence	Position	No. of Amino Acids	A*0201	A*0202	A*0203	A*0206	A*6802	Seq. Id. No.
HPV56	L2	YIQGSFAL	431	9						9354
HPV56	L2	YVPLGSRPST	71	10						9355
HPV56	L2	YVPLGSRPSTI	71	11						9356

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	E1	AAALYVYK	316	8						9357
HPV16	E1	AAMLAKFK	205	8						9358
HPV16	E1	AICIEKQSR	112	9	0.0010	0.0057				9359
HPV16	E1	ALFTAQEA	69	9	0.2400	0.4000				9360
HPV16	E1	ALKRFLQGIK	459	11						9361
HPV16	E1	ATMCRHYK	406	8		1.5000				9362
HPV16	E1	ATMCRHYKR	406	9	0.0660					9363
HPV16	E1	AVQVLKRR	82	8						9364
HPV16	E1	CATMCRHYK	405	9	0.0012	0.0098	0.0077	0.0100	0.0056	9365
HPV16	E1	CATMCRHYKR	405	10						9366
HPV16	E1	CIEKQSRRAK	114	10						9367
HPV16	E1	CIEKQSRRAKR	114	11						9368
HPV16	E1	CMMIEPPK	304	8						9369
HPV16	E1	CMMIEPPKLR	304	10						9370
HPV16	E1	CVDNNISPR	101	9						9371
HPV16	E1	CVDNNISPRLK	101	11						9372
HPV16	E1	DAVQVLKR	81	8						9373
HPV16	E1	DAVQVLKRR	81	9						9374
HPV16	E1	DIVDDSEIAYK	368	11						9375
HPV16	E1	DSRWPLYHNR	573	10						9376
HPV16	E1	DTNSNASAFK	384	11						9377
HPV16	E1	DTPEWIKR	335	8						9378
HPV16	E1	DVKHRLPLQLK	548	11						9379
HPV16	E1	ELNDKNWK	603	8						9380
HPV16	E1	ELVRPFKSNK	221	10						9381
HPV16	E1	ETIEKLLSK	288	9						9382
HPV16	E1	ETQQLQVEGR	140	11						9383
HPV16	E1	FLKSNQAK	392	9	0.0013	0.0002				9384
HPV16	E1	FLQGIKK	463	8	0.1300	0.2100				9385
HPV16	E1	FMSFLTALK	453	9						9386
HPV16	E1	FMSFLTALKR	453	10						9387
HPV16	E1	FSELVRPFK	219	9						9388
HPV16	E1	FTAQEAQHR	71	10						9389
HPV16	E1	GLTPSIADSIK	242	11						9390
HPV16	E1	GMVVLVLLVR	272	9	0.0036	0.0082				9391
HPV16	E1	GMVVLVLLVRYK	272	11						9392
HPV16	E1	GSGGEGVSR	174	10						9393
HPV16	E1	GSGGEGVSR	496	10						9394
HPV16	E1	GSGGEGVSR	216	9	0.0011	0.0180				9395
HPV16	E1	HALFTAQEA	68	10						9396
HPV16	E1	ILLYGAANTGK	473	11						9397
HPV16	E1	ILNVLTSTNAK	194	11						9398
HPV16	E1	IVDDSEIAYK	369	10						9399
HPV16	E1	IVKDCATMCR	401	10						9400
HPV16	E1	KAAMLAKFK	204	9	0.1100	0.1800				9401
HPV16	E1	KAICIEKQSR	111	10						9402

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	E1	KIVKDCATMCR	400	11						9403
HPV16	E1	KSFFSRTWSR	610	10						9404
HPV16	E1	KSLFGMSLMK	483	10						9405
HPV16	E1	KSNSQAKIVK	394	10						9406
HPV16	E1	LLLVRYKCGK	276	10						9407
HPV16	E1	LLVRYKCGK	277	9	0.0043	0.0033				9408
HPV16	E1	LLVRYKCGKNR	277	11						9409
HPV16	E1	LLYGAANTGK	474	10						9410
HPV16	E1	LSLHEDEDK	620	9	0.0005	0.0002				9411
HPV16	E1	LTNILNVLK	191	9	0.0086	0.4200				9412
HPV16	E1	LTPSIADSIK	243	10						9413
HPV16	E1	LVRPFKSNK	222	9	0.0700	1.8000				9414
HPV16	E1	LVRYPKCGK	278	8						9415
HPV16	E1	LVRYPKCGKNR	278	10						9416
HPV16	E1	LVSMDEVKHR	544	9	0.0005	0.0089				9417
HPV16	E1	MIPEPKLR	306	8						9418
HPV16	E1	MMIEPPKLR	305	9	0.0010	0.0086				9419
HPV16	E1	MSFLTALK	454	8						9420
HPV16	E1	MSFLTALKR	454	9	0.0870	0.0980				9421
HPV16	E1	MSMSQWIK	420	8						9422
HPV16	E1	MSMSQWIKYR	420	10						9423
HPV16	E1	MSQWIKYR	422	8						9424
HPV16	E1	MSQWIKYRCDR	422	11						9425
HPV16	E1	MVVLILLR	273	8						9426
HPV16	E1	MVVLILLVRYK	273	10						9427
HPV16	E1	NAKAAMLAK	202	9	0.0005	0.0031				9428
HPV16	E1	NAKAAMLAKFK	202	11						9429
HPV16	E1	NINAGTDSR	567	9	0.0005	0.0002				9430
HPV16	E1	NLVSMDEVK	543	8						9431
HPV16	E1	NLVSMDEVKHR	543	10						9432
HPV16	E1	NSNASAFK	386	9	0.0005	0.0110				9433
HPV16	E1	NSQAKIVK	396	8						9434
HPV16	E1	NVLKTSNAK	196	9	0.0005	0.0015				9435
HPV16	E1	PLTNILNVLK	190	10						9436
HPV16	E1	PMCMMEPPK	302	10						9437
HPV16	E1	PSIADSIK	245	8						9438
HPV16	E1	PVYELNDK	600	8						9439
HPV16	E1	PVYELNDKNWK	600	11						9440
HPV16	E1	QMLQVEGR	143	8						9441
HPV16	E1	QMSMSQWIK	419	9	0.0023	0.0260				9442
HPV16	E1	QMSMSQWIKYR	419	11						9443
HPV16	E1	QSRRAAKRR	118	8						9444
HPV16	E1	RLKAICIEK	109	9	0.0840	0.0510				9445
HPV16	E1	RLSLHEDEDK	619	10						9446
HPV16	E1	RSTAAALYWK	313	11						9447
HPV16	E1	RVDDGGDWK	432	9						9448

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	E1	SAFLKSNQAK	390	11						9449
HPV16	E1	SLFGMSLMK	484	9	0.7200	7.1000				9450
HPV16	E1	SLHEDEK	621	8						9451
HPV16	E1	SMSQWIKYR	421	9	0.6900	0.0280				9452
HPV16	E1	STAAALYWK	314	10						9453
HPV16	E1	SVICFVNSK	497	9	0.0005	0.0002				9454
HPV16	E1	TAAALYWK	315	9	0.7800	20.0000				9455
HPV16	E1	TAQEAQQR	72	9	0.0005	0.0025				9456
HPV16	E1	TIEKLLSK	289	8						9457
HPV16	E1	TMCRIHYKR	407	8						9458
HPV16	E1	TMCRIHYKRAEK	407	11						9459
HPV16	E1	TSNAKAAMLAK	200	11						9460
HPV16	E1	TSNINAGTDSR	565	11						9461
HPV16	E1	VICFVNSK	498	8						9462
HPV16	E1	VLKTSNAK	197	8						9463
HPV16	E1	VLLLVRYK	275	8						9464
HPV16	E1	VLLLVRYKCGK	275	11						9465
HPV16	E1	VSFSELVR	217	8						9466
HPV16	E1	VSFSELVRPFK	217	11						9467
HPV16	E1	VSMDEVKHR	545	8						9468
HPV16	E1	VVLLLVRYK	274	9	1.0000	0.3600				9469
HPV16	E1	WIKYRCDR	425	8						9470
HPV16	E1	WLQPLADAK	509	9	0.0005	0.0002				9471
HPV16	E1	YVEAVVEK	20	8						9472
HPV16	E1	YVEAVVEKK	20	9						9473
HPV16	E2	CAIYKAR	40	8						9474
HPV16	E2	CLRYRFFK	300	8						9475
HPV16	E2	DAEKYSKNK	174	9						9476
HPV16	E2	DANTLKCLR	294	9						9477
HPV16	E2	DANTLKCLRYR	294	11						9478
HPV16	E2	DLRDHIDYWK	25	10						9479
HPV16	E2	DTGNPCHTTK	246	10						9480
HPV16	E2	ETQTTIQR	233	8						9481
HPV16	E2	ETQTTIQRPR	233	10						9482
HPV16	E2	EVSSPEIIR	204	9						9483
HPV16	E2	FLSQVKIPK	346	9						9484
HPV16	E2	FVQFKDDAEK	168	10						9485
HPV16	E2	GIRTYFVQFK	163	10						9486
HPV16	E2	GLYYVHEGIR	156	10						9487
HPV16	E2	GTEETQTTIQR	230	11						9488
HPV16	E2	HIDYWKHMR	29	9						9489
HPV16	E2	HLKGDANTLK	290	10						9490
HPV16	E2	HMRLECAIYYK	35	11						9491
HPV16	E2	HTTKLLHR	252	8						9492
HPV16	E2	ILTAFNSSHK	267	10						9493
HPV16	E2	KAREMGFK	45	8						9494

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	E2	LANHPAAATHK	215	11						9495
HPV16	E2	LSQVKIPK	347	8						9496
HPV16	E2	LTAFNSSHK	268	9						9497
HPV16	E2	LTAFNSSHKGR	268	11						9498
HPV16	E2	LTAPTGCCK	103	9						9499
HPV16	E2	LTAPTGCCKK	103	10						9500
HPV16	E2	LTVDSEWQR	335	9						9501
HPV16	E2	NSNTPIVHLK	282	11						9502
HPV16	E2	NSQYSNEK	84	8						9503
HPV16	E2	NTLKCLRYR	296	9						9504
HPV16	E2	NTLKCLRYRFFK	296	11						9505
HPV16	E2	NTTPIVHLK	284	9						9506
HPV16	E2	PILAFNSSHK	266	11						9507
HPV16	E2	PTLAVSKNK	60	9						9508
HPV16	E2	QTTIQRPR	235	8						9509
HPV16	E2	QVPTLAVSK	57	10						9510
HPV16	E2	RLECAIYYK	37	9						9511
HPV16	E2	RLECAIYYKAR	37	11						9512
HPV16	E2	RLNVQDQK	7	8						9513
HPV16	E2	RTYFVQFK	165	8						9514
HPV16	E2	STWHWTGHNVK	317	11						9515
HPV16	E2	TAFNSSHK	269	8						9516
HPV16	E2	TAFNSSHKGR	269	10						9517
HPV16	E2	TAPTGCCK	104	8						9518
HPV16	E2	TAPTGCCKK	104	9						9519
HPV16	E2	TIYNSQYSNEK	81	11						9520
HPV16	E2	TLAVSKNK	61	8						9521
HPV16	E2	TLKCLRYR	297	8						9522
HPV16	E2	TLKCLRYRFFK	297	10						9523
HPV16	E2	TLKCLRYRFFKK	297	11						9524
HPV16	E2	TLTYDSEWQR	334	10						9525
HPV16	E2	TTPIVHLK	285	8						9526
HPV16	E2	VSSPEIR	205	8						9527
HPV16	E2	VTLYDSEWQR	333	11						9528
HPV16	E2	VVPTLAVSK	58	9						9529
HPV16	E2	VVPTLAVSKNK	58	11						9530
HPV16	E2	WTGHNVKHK	321	9						9531
HPV16	E2	YLTAPTGCCK	102	10						9532
HPV16	E2	YLTAPTGCCKK	102	11						9533
HPV16	E2	CVLLCVCLLIR	20	11						9534
HPV16	E5	FLIHTAR	72	8						9535
HPV16	E5	ITAASAFR	51	8						9536
HPV16	E5	LLCVCLLIR	22	9						9537
HPV16	E5	LLWITAASAFR	48	11						9538
HPV16	E5	PLFLIHTAR	70	10						9539
HPV16	E5	VLLCVCLLIR	21	10						9540

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	E5	WITAASAFR	50	9						9541
HPV16	E6	AMFQDPQER	7	9	0.0170	0.0320				9542
HPV16	E6	AMFQDPQERPR	7	11						9543
HPV16	E6	AVCDKCLK	68	8	0.0053	0.0110				9544
HPV16	E6	CMSCCRSSR	143	9	0.0033	0.0001	0.0820	0.1200	0.0011	9545
HPV16	E6	CMSCCRSSRTR	143	11						9546
HPV16	E6	CVYCKQQLLR	37	10	0.0001	0.0005				9547
HPV16	E6	CVYCKQQLLR	37	11						9548
HPV16	E6	DIIECVYCK	32	10	0.0065	0.0210				9549
HPV16	E6	DLIRINCQK	105	11	0.0004	0.0025				9550
HPV16	E6	EVDFAFR	48	8						9551
HPV16	E6	FAFRDLICIVYR	52	11	0.0002	0.0700				9552
HPV16	E6	GTLEQQYNYK	92	10	0.0016	0.0190				9553
HPV16	E6	IIECVYCK	33	9						9554
HPV16	E6	IIECVYCK	34	8						9555
HPV16	E6	IIECVYCK	107	9	0.0025	0.0009	0.0012	0.0041	0.0021	9556
HPV16	E6	LIIRCNCQK	106	10	0.0210	0.1800				9557
HPV16	E6	LLIRINCQK	144	8						9558
HPV16	E6	MSCCRSSR	144	10						9559
HPV16	E6	MSCCRSSRTR	144	11	0.0014	0.0005				9560
HPV16	E6	MSCCRSSRTR	134	9						9561
HPV16	E6	NIRGRWTGR	102	8	0.0002	0.0005				9562
HPV16	E6	PLCDLLR	116	9						9563
HPV16	E6	PLCPEEKQR	5	11						9564
HPV16	E6	RTAMFQDPQER	6	10						9565
HPV16	E6	TAMFQDPQER	94	8						9566
HPV16	E6	TLEQQYNYK	93	9	0.0100	0.2900		0.0660	0.3000	9567
HPV16	E6	TTLEQQYNYK	139	10	0.0003	0.0008				9568
HPV16	E6	WTGRCMSCCR	67	9	0.0003	0.0010	0.0015	0.0024	0.0120	9569
HPV16	E6	YAVCDKCLK	77	8						9570
HPV16	E6	YSKISEYR	68	10	0.0049	0.0001				9571
HPV16	E7	CVQSTHVDIR	88	10	0.0003	0.0670				9572
HPV16	E7	GIVCPICSQK	89	9	0.0077	0.0065			0.0100	9573
HPV16	E7	IVCPICSQK	53	8						9574
HPV16	E7	NIVTFCK	41	9						9575
HPV16	E7	PAGQAEPR	70	8						9576
HPV16	E7	QSTHVDIR	372	11						9577
HPV16	L1	AAISTSETTYK	162	9						9578
HPV16	L1	AANAGVDNR	373	10						9579
HPV16	L1	AISTSETTYK	233	11						9580
HPV16	L1	AMDFTLQANK	70	10						9581
HPV16	L1	AVGHPYFPIK	128	8						9582
HPV16	L1	AVGHPYFPIKK	249	8						9583
HPV16	L1	CVGVEVGR	484	9						9584
HPV16	L1	DICTSICK	484	10						9585
HPV16	L1	DLDQFPLGR	484	10						9586
HPV16	L1	DLDQFPLGRK	484	10						9586

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	L1	DLQIFQLCK	397	10						9587
HPV16	L1	DSLFFYLK	270	8						9588
HPV16	L1	DSLFFYLRR	270	9						9589
HPV16	L1	DTSFYNPDTQR	113	11						9590
HPV16	L1	ETTYKNTNFK	378	10						9591
HPV16	L1	FLQAGLK	494	8						9592
HPV16	L1	FLQAGLKAK	494	10						9593
HPV16	L1	FTTLQANK	236	8						9594
HPV16	L1	FVRHLFNR	282	8						9595
HPV16	L1	FVTSQAIACQK	446	11						9596
HPV16	L1	FVTVDITR	356	9						9597
HPV16	L1	GISGHPLLNK	142	10						9598
HPV16	L1	GLQYRVFR	93	8						9599
HPV16	L1	GTLEDITR	438	8						9600
HPV16	L1	ISGHPLLNK	143	9						9601
HPV16	L1	ISTSETTYK	374	9						9602
HPV16	L1	KAKPKFTLGK	501	10						9603
HPV16	L1	KAKPKFTLGKR	501	11						9604
HPV16	L1	KVSGLQYR	90	8						9605
HPV16	L1	KVSGLQYRVFR	90	11						9606
HPV16	L1	KVSTDEYVAR	46	11						9607
HPV16	L1	LAVGHPYFPK	69	11						9608
HPV16	L1	LLQAGLKAK	495	9						9609
HPV16	L1	LLQAGLKAKPK	495	11						9610
HPV16	L1	LVPKVSGLQYR	87	11						9611
HPV16	L1	MVTSDAQIFNK	325	11						9612
HPV16	L1	NIYYHAGTSR	58	10						9613
HPV16	L1	NTNFKEYLR	383	9						9614
HPV16	L1	NVPDDLVIK	296	9						9615
HPV16	L1	PAPKEDPLK	460	9						9616
HPV16	L1	PAPKEDPLKK	460	10						9617
HPV16	L1	PIGEHWGK	190	8						9618
HPV16	L1	PIKKPNNK	77	9						9619
HPV16	L1	PLDICTSICK	247	10						9620
HPV16	L1	PTTSTSTTAK	515	11						9621
HPV16	L1	QAGLKAKPK	497	9						9622
HPV16	L1	QIFNKPYWLQR	331	11						9623
HPV16	L1	QLCLIGCK	181	8						9624
HPV16	L1	QLFVTVVDITR	354	11						9625
HPV16	L1	QMFVRHLFNR	280	10						9626
HPV16	L1	QTQLCLIGCK	179	10						9627
HPV16	L1	RIHLDPNK	100	9						9628
HPV16	L1	SADLDQFPLGR	482	11						9629
HPV16	L1	SICKYPDYK	253	10						9630
HPV16	L1	SLFFYLRR	271	8						9631
HPV16	L1	SSTSTTAK	518	8						9632

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	L1	SSTSTTAKR	518	9						9633
HPV16	L1	SSTSTTAKRK	518	10						9634
HPV16	L1	SSTSTTAKRKK	518	11						9635
HPV16	L1	STDEYVAR	49	8						9636
HPV16	L1	STSETTYK	375	8						9637
HPV16	L1	STSTTAKR	519	8						9638
HPV16	L1	STSTTAKRK	519	9						9639
HPV16	L1	STSTTAKRKK	519	10						9640
HPV16	L1	STSTTAKRKKR	519	11						9641
HPV16	L1	STTAKRKK	521	8						9642
HPV16	L1	STTAKRKKR	521	9						9643
HPV16	L1	STTAKRKKRK	521	10						9644
HPV16	L1	TAKRKKRK	523	8						9645
HPV16	L1	TSDAQIFNK	327	9						9646
HPV16	L1	TSFYNPDTQR	114	10						9647
HPV16	L1	TSICKYPDYIK	252	11						9648
HPV16	L1	TSQAIAQCK	448	9						9649
HPV16	L1	TSSTSTTAK	517	9						9650
HPV16	L1	TSSTSTTAKR	517	10						9651
HPV16	L1	TSSTSTTAKRK	517	11						9652
HPV16	L1	TSTTAKRK	520	8						9653
HPV16	L1	TSTTAKRKK	520	9						9654
HPV16	L1	TSTTAKRKKR	520	10						9655
HPV16	L1	TSTTAKRKKRK	520	11						9656
HPV16	L1	TTAKRKKR	522	8						9657
HPV16	L1	TTAKRKKRK	522	9						9658
HPV16	L1	TTSTSTTAK	516	10						9659
HPV16	L1	TTSTSTTAKR	516	11						9660
HPV16	L1	TTYKNTNFK	379	9						9661
HPV16	L1	TVYLPVPVPSK	36	11						9662
HPV16	L1	VSGLQYRVFR	91	10						9663
HPV16	L1	VSTDEYVAR	48	9						9664
HPV16	L1	VTSDAQIFNK	326	10						9665
HPV16	L1	VTSDAQIAQCK	447	10						9666
HPV16	L1	VTVDVTR	357	8						9667
HPV16	L1	VVSTDEYVAR	47	10						9668
HPV16	L1	WACVGEVGR	126	10						9669
HPV16	L1	YAANAGVDNR	161	10						9670
HPV16	L1	YLPPVPVSK	38	9						9671
HPV16	L1	YLRREQMFVR	275	10						9672
HPV16	L1	YTFWEVNLK	470	9						9673
HPV16	L1	YTFWEVNLKEK	470	11						9674
HPV16	L2	ALHRPALTSR	288	10						9675
HPV16	L2	ALHRPALTSSR	288	11						9676
HPV16	L2	ALTSRRTGIR	293	10						9677
HPV16	L2	ASATQLYK	13	8						9678

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	L2	ASATQLYKTC	13	11						9679
HPV16	L2	ATDTLAPVR	82	9						9680
HPV16	L2	ATQLYKTC	15	9						9681
HPV16	L2	DIIPKVEGK	31	9						9682
HPV16	L2	FLDIVALHR	283	9						9683
HPV16	L2	GIGTSGTGGR	59	11						9684
HPV16	L2	GIRYSRIGNK	300	10						9685
HPV16	L2	GLYSRTTQQVK	226	11						9686
HPV16	L2	GTCPPDIIPK	26	10						9687
HPV16	L2	GTGSGTGGR	61	9						9688
HPV16	L2	IIPKVEGK	32	8						9689
HPV16	L2	LTSRRTGIR	294	9						9690
HPV16	L2	MLRKRKR	454	8						9691
HPV16	L2	PAFITPTK	240	9						9692
HPV16	L2	PALTSRRTGIR	292	11						9693
HPV16	L2	PIPGSRPVAR	215	10						9694
HPV16	L2	PSYYMLRK	450	8						9695
HPV16	L2	PSYYMLRKR	450	9						9696
HPV16	L2	PSYYMLKRRR	450	10						9697
HPV16	L2	PSYYMLKRRK	450	11						9698
HPV16	L2	PTATDLAPVR	80	11						9699
HPV16	L2	PVARGLYSR	221	10						9700
HPV16	L2	QTLTRSGK	310	9						9701
HPV16	L2	RASATQLYK	12	9						9702
HPV16	L2	RIGNKQTLR	305	9						9703
HPV16	L2	RIGNKQTLRTR	305	11						9704
HPV16	L2	RSKRTRKR	5	8						9705
HPV16	L2	RSKKSIGAK	315	9						9706
HPV16	L2	RTGIRYSR	298	8						9707
HPV16	L2	RTGYIPLGTR	69	10						9708
HPV16	L2	RTRSGKSIGAK	313	11						9709
HPV16	L2	SATQLYKTC	14	10						9710
HPV16	L2	SSTPIPGSR	212	9						9711
HPV16	L2	STPIGSR	213	8						9712
HPV16	L2	TATDTLAPVR	81	10						9713
HPV16	L2	TLRTRSGK	311	8						9714
HPV16	L2	TSRRTGIR	295	8						9715
HPV16	L2	TSRRTGIRYSR	295	11						9716
HPV16	L2	TSSTPIPGSR	211	10						9717
HPV16	L2	VALHRPALTSR	287	11						9718
HPV16	L2	VARGLYSR	222	9						9719
HPV16	L2	VTSSTPIPGSR	210	11						9720
HPV16	L2	YLHPSYYMLR	447	10						9721
HPV16	L2	YLHPSYYMLRK	447	11						9722
HPV16	L2	YMLRKRKR	453	8						9723
HPV16	L2	YMLRKRKR	453	9						9724

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV16	L2	YSRIGNKQTLR	303	11						9725
HPV16	L2	YSRITQQVK	228	9						9726
HPV18	E1	AAFLKSNCOAK	397	11						9727
HPV18	E1	ALDGNPISIDR	546	11						9728
HPV18	E1	ALKSFLKGTPK	466	11						9729
HPV18	E1	ALLRYKCGK	284	9	0.0900	0.1400				9730
HPV18	E1	ALLRYKCGKSR	284	11						9731
HPV18	E1	ATMCKHYR	413	8						9732
HPV18	E1	ATMCKHYRR	413	9	0.0300	0.2800				9733
HPV18	E1	CATMCKHYR	412	9	0.0012	0.0110				9734
HPV18	E1	CATMCKHYRR	412	10						9735
HPV18	E1	CMLIQPPK	311	8						9736
HPV18	E1	CMLIQPPKL	311	10						9737
HPV18	E1	CSKIDEGGDWR	437	11						9738
HPV18	E1	CTIAQLKDLLK	196	11						9739
HPV18	E1	DAQVLHVLK	78	9						9740
HPV18	E1	DAQVLHVLKR	78	10						9741
HPV18	E1	DAQVLHVLKRK	78	11						9742
HPV18	E1	DLLKVNKK	203	8						9743
HPV18	E1	DLVRNFKSDK	228	10						9744
HPV18	E1	DSNSAAAAFLK	391	11						9745
HPV18	E1	DTEGNPFGTEK	637	11						9746
HPV18	E1	DPEWIKR	342	8						9747
HPV18	E1	BINDKNWK	610	8						9748
HPV18	E1	EISLNSGQK	115	9						9749
HPV18	E1	EISLNSGQKK	115	10						9750
HPV18	E1	ETCMLIQPPK	309	10						9751
HPV18	E1	EVDTELSPR	104	9	0.0320	0.0370				9752
HPV18	E1	FITFLGALK	460	9						9753
HPV18	E1	FLGALKSFLK	463	10						9754
HPV18	E1	FLKGTPEKK	470	8						9755
HPV18	E1	FLKSNCOAK	399	9	0.0035	0.0007				9756
HPV18	E1	FTDLVRNFK	226	9						9757
HPV18	E1	GALKSFLK	465	8						9758
HPV18	E1	GAMLAVFK	212	8						9759
HPV18	E1	GLSFTDLVR	223	9	0.0009	0.0025				9760
HPV18	E1	GSTENSPLGER	92	11						9761
HPV18	E1	GVILALLR	279	9	0.0058	0.1400				9762
HPV18	E1	GVILALLRYK	279	11						9763
HPV18	E1	GVNPTIAEGFK	249	11						9764
HPV18	E1	HIQCLDCK	270	8						9765
HPV18	E1	IAQLDCLK	198	9	0.0003	0.0027				9766
HPV18	E1	ILALLRYK	282	8						9767
HPV18	E1	ILALLRYKCGK	282	11						9768
HPV18	E1	ILLTTNIHPAK	569	11						9769
HPV18	E1	ISDRKHK	552	8						9770

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Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	E1	ISLSGQK	116	8						9771
HPV18	E1	ISLSGQKK	116	9	0.0003	0.0026				9772
HPV18	E1	ISLSGQKKAK	116	11						9773
HPV18	E1	ITFLGALK	461	8						9774
HPV18	E1	KIDEGDWR	439	9						9775
HPV18	E1	KLRAGQNR	647	9	0.3000	0.0013				9776
HPV18	E1	KSLKGTPK	468	9	0.0003	0.0015				9777
HPV18	E1	KSLKGTGPK	468	10						9778
HPV18	E1	KSNCOAKYLK	401	10						9779
HPV18	E1	KSRLTVAK	292	8						9780
HPV18	E1	LALLRYKCGK	283	10	0.2700	0.1800				9781
HPV18	E1	LILALLRYK	281	9						9782
HPV18	E1	LIQPPKLR	313	8						9783
HPV18	E1	LLRYKCGK	285	8						9784
HPV18	E1	LLRYKCGKSR	285	10						9785
HPV18	E1	LLTNIHPAK	570	10						9786
HPV18	E1	LSFTDLVR	224	8						9787
HPV18	E1	LSFTDLVRNFK	224	11	0.0910	0.1200				9788
HPV18	E1	LTNIHPAK	571	9						9789
HPV18	E1	LVFCGPANTGK	480	11						9790
HPV18	E1	LVRNFKSDK	229	9	0.0005	0.0002				9791
HPV18	E1	MLIQPPKLR	312	9	0.0005	0.0014				9792
HPV18	E1	MSQWIRFR	429	8						9793
HPV18	E1	MSQWIRFRCSK	429	11						9794
HPV18	E1	NIHPAKDNR	574	9	0.0005	0.0002				9795
HPV18	E1	NMSQWIRFR	428	9	0.0540	0.0012				9796
HPV18	E1	NSGQKKAK	119	8						9797
HPV18	E1	NSGQKKAKR	119	9	0.0005	0.0002				9798
HPV18	E1	NSGQKKAKRR	119	10						9799
HPV18	E1	NSNAAAFLLK	393	9	0.0057	0.3700				9800
HPV18	E1	PISDRKHK	551	9						9801
HPV18	E1	PTIAEGFK	252	8						9802
HPV18	E1	PVYEINDK	607	8						9803
HPV18	E1	PVYEINDKNWK	607	11						9804
HPV18	E1	QLKDLLKVNK	200	11						9805
HPV18	E1	QMNMMSQWIR	426	9						9806
HPV18	E1	QMNMMSQWIRFR	426	11	0.0011	0.0023				9807
HPV18	E1	QVLHVLKR	80	8						9808
HPV18	E1	QVLHVLKRK	80	9	0.0028	0.0020				9809
HPV18	E1	RLEVDTELSR	102	11						9810
HPV18	E1	RSSVAALYWYR	320	11						9811
HPV18	E1	SLNSGQKK	117	8						9812
HPV18	E1	SLNSGQKKAK	117	10						9813
HPV18	E1	SLNSGQKKAKR	117	11						9814
HPV18	E1	SSVAALYWYR	321	10						9815
HPV18	E1	STENSPLGER	93	10						9816

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	E1	SVAALYWYR	322	9	2.9000	8.8000				9817
HPV18	E1	TIAQLDLLK	197	10						9818
HPV18	E1	TMCKHYRR	414	8						9819
HPV18	E1	TMCKHYRRAQK	414	11						9820
HPV18	E1	TTNIHPAK	572	8						9821
HPV18	E1	TTNIHPAKDNR	572	11						9822
HPV18	E1	VAALYWYR	323	8						9823
HPV18	E1	VLHVLKRR	81	8						9824
HPV18	E1	VLILALLR	280	8						9825
HPV18	E1	VLILALLRYK	280	10						9826
HPV18	E1	VMGDTPEWIKR	339	11						9827
HPV18	E1	WIRFRCCK	432	8						9828
HPV18	E1	WLEPLTDK	516	9						9829
HPV18	E1	WTYFDYMR	536	9	0.0005	0.0120				9830
HPV18	E1	YAHQCLDCK	268	10						9831
HPV18	E1	YLKDCATMCK	408	10						9832
HPV18	E1	YVQAIVDK	19	8						9833
HPV18	E1	YVQAIVDKK	19	9	0.0005	0.0290				9834
HPV18	E2	AATPTGNNK	269	9						9835
HPV18	E2	AATPTGNNKR	269	10						9836
HPV18	E2	AATPTGNNKRR	269	11						9837
HPV18	E2	ALQGLAQSR	82	9						9838
HPV18	E2	ALQGLAQSRK	82	11						9839
HPV18	E2	ATPTGNNK	270	8						9840
HPV18	E2	ATPTGNNKR	270	9						9841
HPV18	E2	ATPTGNNKRR	270	10						9842
HPV18	E2	ATPTGNNKRRK	270	11						9843
HPV18	E2	CLRYRLRK	301	8						9844
HPV18	E2	CVSHRGLYYVK	156	11						9845
HPV18	E2	DSQIYWQLIR	31	11						9846
HPV18	E2	DTVSATQLVK	210	10						9847
HPV18	E2	GAATPTGNNK	268	10						9848
HPV18	E2	GAATPTGNNKR	268	11						9849
HPV18	E2	GLAQSRK	85	8						9850
HPV18	E2	HLKGDNRSLK	291	10						9851
HPV18	E2	HSETQRTK	338	8						9852
HPV18	E2	IIDHYENDSK	19	10						9853
HPV18	E2	IHLKGDR	289	8						9854
HPV18	E2	ISKSAHK	68	8						9855
HPV18	E2	KIIDHYENDSK	18	11						9856
HPV18	E2	KTATCVSHR	152	9						9857
HPV18	E2	KTYGQTSAAIR	238	11						9858
HPV18	E2	LSERLSCVQDK	8	11						9859
HPV18	E2	LTVTYHSETQR	333	11						9860
HPV18	E2	MALQGLAQSR	81	10						9861
HPV18	E2	MTDAGTWDK	144	9						9862

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	E2	NAIFFAAR	44	8						9863
HPV18	E2	NISKKAHK	67	9						9864
HPV18	E2	NSLKCLRYR	297	9						9865
HPV18	E2	NSLKCLRYRLR	297	11						9866
HPV18	E2	NTEPTHCFK	107	9						9867
HPV18	E2	NTEPTHCFKK	107	10						9868
HPV18	E2	NTFYIEFK	170	8						9869
HPV18	E2	NTPIHLK	285	9						9870
HPV18	E2	PAYNISKSK	64	9						9871
HPV18	E2	PIHLKGDR	288	9						9872
HPV18	E2	PTGNKKRR	272	8						9873
HPV18	E2	PTGNKKRRK	272	9						9874
HPV18	E2	QIYWQLIR	33	9						9875
HPV18	E2	QMALQGLAQR	80	11						9876
HPV18	E2	QTPKETLSR	2	10						9877
HPV18	E2	QTVQVYFDGNK	119	11						9878
HPV18	E2	QVVPAYNISK	61	10						9879
HPV18	E2	QVYFDGNK	122	8						9880
HPV18	E2	RLRKHSDHYR	305	10						9881
HPV18	E2	RLSCVQDK	11	8						9882
HPV18	E2	SLKCLRYR	298	8						9883
HPV18	E2	SLKCLRYRLR	298	10						9884
HPV18	E2	SLKCLRYRLRK	298	11						9885
HPV18	E2	STVSVGTAK	229	10						9886
HPV18	E2	STVSVGTAK	230	9						9887
HPV18	E2	TATCVSHR	153	8						9888
HPV18	E2	TTPIHLK	286	8						9889
HPV18	E2	TTPIHLKGDR	286	11						9890
HPV18	E2	TVQVYFDGNK	120	10						9891
HPV18	E2	TVSATQLVK	211	9						9892
HPV18	E2	TVSVGTAK	231	8						9893
HPV18	E2	TVTYHSETQR	334	10						9894
HPV18	E2	VSATQLVK	212	8						9895
HPV18	E2	VSHRGLYYVK	157	10						9896
HPV18	E2	VTYHSETQR	335	9						9897
HPV18	E2	VTYHSETQRTK	335	11						9898
HPV18	E2	VVPAYNISK	62	9						9899
HPV18	E2	VVPAYNISKSK	62	11						9900
HPV18	E2	WTGAGNEK	322	8						9901
HPV18	E2	YIEFKSECEK	173	10						9902
HPV18	E2	YMTDAGTWDK	143	10						9903
HPV18	E2	YSSTVSVGTAK	228	11						9904
HPV18	E6	CIDFYSRIR	68	9	0.0001	0.0001				9905
HPV18	E6	DIEITCVYCK	27	10	0.0089	0.0021				9906
HPV18	E6	DSIPHAACHK	58	10						9907
HPV18	E6	DSVYGDITLEK	83	10	0.0005	0.0051				9908

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	E6	EITCVYCK	29	8						9909
HPV18	E6	ELTEVFEFAFK	40	11						9910
HPV18	E6	EVFEFAFK	43	8	0.0025	0.0180				9911
HPV18	E6	FAFKDLFVVYR	47	11						9912
HPV18	E6	GLYNLLIR	97	8						9913
HPV18	E6	GLYNLLIRCLR	97	11						9914
HPV18	E6	HSCNRRAR	139	8						9915
HPV18	E6	HSCNRRARQER	139	11						9916
HPV18	E6	KLRHLNEK	117	8						9917
HPV18	E6	KLRHLNEKR	117	9	0.0250	0.0005				9918
HPV18	E6	KLRHLNEKRR	117	10	0.0130	0.0001				9919
HPV18	E6	LIRCLRCQK	102	9	0.0190	0.0012				9920
HPV18	E6	LIRCLRCQK	101	10	0.0470	0.1200				9921
HPV18	E6	LTEVFEFAFK	41	10	0.0001	0.0360				9922
HPV18	E6	MARFEDPTR	1	9						9923
HPV18	E6	MARFEDPTR	1	10						9924
HPV18	E6	NLLIRCLR	100	8						9925
HPV18	E6	NLLIRCLRCQK	100	11						9926
HPV18	E6	NTGLYNLLIR	95	10	0.0002	0.0013				9927
HPV18	E6	PAEKLRLHNEK	114	11						9928
HPV18	E6	PLNPAEKL	111	9	0.0002	0.0005				9929
HPV18	E6	RARQERLQR	144	9	0.0007	0.0002				9930
HPV18	E6	RARQERLQRR	144	10						9931
HPV18	E6	RARQERLQRRR	144	11						9932
HPV18	E6	SIPHAACHK	59	9	0.0170	0.1200				9933
HPV18	E6	SVYGDITLEK	84	9	0.0800	0.2300				9934
HPV18	E6	YSRIRELR	72	8						9935
HPV18	E6	CMCKCKCEAR	63	9						9936
HPV18	E7	CMCKCKCEARIK	63	11	0.0014	0.0002				9937
HPV18	E7	ESSADDLR	77	8						9938
HPV18	E7	GVNHQHLPAR	43	10						9939
HPV18	E7	GVNHQHLPARR	43	11						9940
HPV18	E7	HLPARAEPR	48	11						9941
HPV18	E7	HTMLCMCK	59	9	0.0640	0.0940				9942
HPV18	E7	LVVSSADDLR	74	11						9943
HPV18	E7	MLCMCKCKCEAR	61	11						9944
HPV18	E7	PARRAEPR	50	9						9945
HPV18	E7	TMLCMCK	60	8	0.0240	0.0240				9946
HPV18	E7	VVSSADDLR	75	10						9947
HPV18	E7	AATSNVSEDVR	195	11						9948
HPV18	L1	AIGEHWAK	225	8						9949
HPV18	L1	AMDFSTLQDTK	268	11						9950
HPV18	L1	ATKFKQYSR	419	9						9951
HPV18	L1	ATSNVSEDVR	196	10						9952
HPV18	L1	ATTSSKPAK	552	9						9953
HPV18	L1	ATTSSKPAKR	552	10						9954

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	L1	CAGVEIGR	163	8						9955
HPV18	L1	CAPAIGEHWAK	222	11						9956
HPV18	L1	CLRREQLFAR	310	10						9957
HPV18	L1	DAAPAEAK	493	8						9958
HPV18	L1	DATKFKQYSR	418	10						9959
HPV18	L1	DICQSICK	284	8						9960
HPV18	L1	DIPKVSAYQYR	122	11						9961
HPV18	L1	DLDDQYPLGR	520	9						9962
HPV18	L1	DLDDQYPLGRK	520	10						9963
HPV18	L1	DSMFFCLR	305	8						9964
HPV18	L1	DSMFFCLR	305	9						9965
HPV18	L1	DTSYNPETQR	148	11						9966
HPV18	L1	DTVPQSLYIK	330	10						9967
HPV18	L1	DVRDNVSDYK	203	11						9968
HPV18	L1	FARHFWNR	317	8						9969
HPV18	L1	FLQMALWR	59	8						9970
HPV18	L1	FLVQAGLR	530	8						9971
HPV18	L1	FLVQAGLRR	530	9						9972
HPV18	L1	FLVQAGLRRK	530	10						9973
HPV18	L1	FSTLDQTK	271	8						9974
HPV18	L1	FVQSVAITCQK	482	11						9975
HPV18	L1	GLRRKPTIGPR	535	11						9976
HPV18	L1	GLSGHPFYNK	177	10						9977
HPV18	L1	IVTSDSQLFNK	360	11						9978
HPV18	L1	KLKFWNVDLK	505	10						9979
HPV18	L1	KVSAYQYR	125	8						9980
HPV18	L1	KVSAYQYRVFR	125	11						9981
HPV18	L1	LLTVGNPYFR	103	10						9982
HPV18	L1	LSGHFYNK	178	9						9983
HPV18	L1	LTVGNPYFR	104	9						9984
HPV18	L1	LVQAGLRR	531	8						9985
HPV18	L1	LVQAGLRRK	531	9						9986
HPV18	L1	PAENKDPYDK	496	10						9987
HPV18	L1	PAIGEHWAK	224	9						9988
HPV18	L1	PAKRVRVR	558	8						9989
HPV18	L1	PAKRVRVRAR	558	10						9990
HPV18	L1	PAKRVRVRARK	558	11						9991
HPV18	L1	PIELQMALWR	57	10						9992
HPV18	L1	PLDICQSICK	282	10						9993
HPV18	L1	PLYGLYHPR	16	10						9994
HPV18	L1	PSATTSSK	550	8						9995
HPV18	L1	PSATTSSKPAK	550	11						9996
HPV18	L1	PTIGPRKR	540	8						9997
HPV18	L1	PTTSLVDTYR	472	10						9998
HPV18	L1	PVPGQYDATK	412	10						9999
HPV18	L1	QLFARHFWNR	315	10						10000

Table IX

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	L1	QLFNKPYWLHK	366	11						10001
HPV18	L1	QSVAITCQK	484	9						10002
HPV18	L1	RLLTVGNPYFR	102	11						10003
HPV18	L1	RSAPSATTSSK	547	11						10004
HPV18	L1	RVPAGGGNK	112	9						10005
HPV18	L1	RVQLPDPNK	135	9						10006
HPV18	L1	RVRVRARK	561	8						10007
HPV18	L1	SAPSAATTSSK	548	10						10008
HPV18	L1	SATTSSKPAK	551	10						10009
HPV18	L1	SATTSSKPAKR	551	11						10010
HPV18	L1	SAYQYRVFR	127	9						10011
HPV18	L1	SIFYHAGSSR	93	10						10012
HPV18	L1	SIYNPETQR	150	9						10013
HPV18	L1	SLDLQYPLGR	518	11						10014
HPV18	L1	SMFFCLRR	306	8						10015
HPV18	L1	SSKPAKRVR	555	9						10016
HPV18	L1	SSKPAKRVRVR	555	11						10017
HPV18	L1	SVAITCQK	555	11						10018
HPV18	L1	TSDSQLFNK	485	8						10019
HPV18	L1	TSIFYHAGSSR	362	9						10020
HPV18	L1	TSIYNPETQR	92	11						10021
HPV18	L1	TSLVDITYR	149	10						10022
HPV18	L1	TSNVSEDRV	474	8						10023
HPV18	L1	TSSKPAKR	197	9						10024
HPV18	L1	TSSKPAKRVR	554	8						10025
HPV18	L1	TSSLVDITYR	554	10						10026
HPV18	L1	TTSSKPAK	473	9						10027
HPV18	L1	TTSSKPAKR	553	8						10028
HPV18	L1	TTSSKPAKR	553	9						10029
HPV18	L1	TTSSKPAKRVR	553	11						10030
HPV18	L1	TVGNPYFR	105	8						10031
HPV18	L1	TVQSLYIK	331	9						10032
HPV18	L1	TVYLPSPVAR	71	11						10033
HPV18	L1	VSAYQYRVFR	126	10						10034
HPV18	L1	VTSDSQLFNK	361	10						10035
HPV18	L1	WACAGVEIGR	161	10						10036
HPV18	L1	WAKGTACK	230	8						10037
HPV18	L1	WAKGTACKSR	230	10						10038
HPV18	L1	YLPSPVAR	73	9						10039
HPV18	L2	ALTSRRGTVR	286	10						10040
HPV18	L2	ASVTDLYK	12	8						10041
HPV18	L2	ASVTDLYKTCK	12	11						10042
HPV18	L2	DMDPAVPVPSR	354	11						10043
HPV18	L2	DSDFMDIR	273	9						10044
HPV18	L2	DSSVVTSGAPR	109	11						10045
HPV18	L2	DTTLTFDPR	260	9						10046
HPV18	L2	FIPKKRRK	443	8						10046

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	L2	FMDIHLHR	276	9						10047
HPV18	L2	FTSGTQIGAR	306	11						10048
HPV18	L2	GIGTSGTGGR	58	11						10049
HPV18	L2	GTCPPDVVPK	25	10						10050
HPV18	L2	GTSGTGGR	60	9						10051
HPV18	L2	GTVRSRLGQR	292	11						10052
HPV18	L2	ISSTPLPTVR	210	10						10053
HPV18	L2	ISSTPLPTVRR	210	11						10054
HPV18	L2	KVEGTLADK	34	10						10055
HPV18	L2	LTSRRGTVR	287	9						10056
HPV18	L2	MVSHRAAR	1	8						10057
HPV18	L2	MVSHRAARR	1	9						10058
HPV18	L2	MVSHRAARRK	1	10						10059
HPV18	L2	MVSHRAARRKR	1	11						10060
HPV18	L2	NTVVDVGPTR	79	10						10061
HPV18	L2	PALTSRRGTVR	285	11						10062
HPV18	L2	PAVPVPSR	357	8						10063
HPV18	L2	PISSTPLPTVR	209	11						10064
HPV18	L2	PLYYFIPK	439	8						10065
HPV18	L2	PLYYFIPKK	439	9						10066
HPV18	L2	PLYYFIPKKR	439	10						10067
HPV18	L2	PLYYFIPKKRK	439	11						10068
HPV18	L2	PTVRRVAGPR	216	10						10069
HPV18	L2	PVDTTLTFDPR	258	11						10070
HPV18	L2	RASVTDLYK	11	9						10071
HPV18	L2	RLGQRATMFTR	298	11						10072
HPV18	L2	RLHRPALTSR	281	10						10073
HPV18	L2	RLHRPALTSTR	281	11						10074
HPV18	L2	RSGTQIGAR	308	9						10075
HPV18	L2	RSTTSFAFFK	364	10						10076
HPV18	L2	RTGYIPLGGR	68	10						10077
HPV18	L2	RVAGPRLYSR	220	10						10078
HPV18	L2	SSTPLPTVR	211	9						10079
HPV18	L2	SSTPLPTVRR	211	10						10080
HPV18	L2	SSVVTSGAPR	110	10						10081
HPV18	L2	STPLPTVR	212	8						10082
HPV18	L2	STPLPTVRR	212	9						10083
HPV18	L2	STTSFAFFK	365	9						10084
HPV18	L2	SVANPEFLTR	235	10						10085
HPV18	L2	SVTDLYKTKC	13	10						10086
HPV18	L2	SVVTSGAPR	111	9						10087
HPV18	L2	TSRRGTVR	288	8						10088
HPV18	L2	TSRRGTVRFSR	288	11						10089
HPV18	L2	TTLTFDPR	261	8						10090
HPV18	L2	TTSFAFFK	366	8						10091
HPV18	L2	TVRFSRLGQR	293	10						10092

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 Table IX
 A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV18	L2	TVRRVAGPR	217	9						10093
HPV18	L2	TVVDVGPR	80	9						10094
HPV18	L2	VAGPRLYSR	221	9						10095
HPV18	L2	VANPEFLTR	236	9						10096
HPV18	L2	VSHRAARR	2	8						10097
HPV18	L2	VSHRAARRK	2	9						10098
HPV18	L2	VSHRAARRKR	2	10						10099
HPV18	L2	VSVANPEFLTR	234	11						10100
HPV18	L2	VTDLTKTCK	14	9						10101
HPV18	L2	VVDVGPR	81	8						10102
HPV18	L2	VVTSGAPR	112	8						10103
HPV18	L2	YLWPLYYPK	436	11						10104
HPV31	E1	AAALYWYR	296	8						10105
HPV31	E1	AAMLGKFK	185	8						10106
HPV31	E1	ACIENNSK	111	9						10107
HPV31	E1	ALKFLKGVPK	439	11						10108
HPV31	E1	AVQVLKRR	81	8						10109
HPV31	E1	CAFLKSNSQAK	370	11						10110
HPV31	E1	CAKNRTIEK	263	10						10111
HPV31	E1	CIENNSKTAK	113	10						10112
HPV31	E1	CIENNSKTAKR	113	11						10113
HPV31	E1	CIISYANSK	477	9						10114
HPV31	E1	CMLIQPPK	284	8						10115
HPV31	E1	CMLIQPPKLR	284	10						10116
HPV31	E1	CVDYNISPR	100	9						10117
HPV31	E1	CVDYNISPRLK	100	11						10118
HPV31	E1	CVSGQNI	620	8						10119
HPV31	E1	DSDSNACAFK	364	11						10120
HPV31	E1	DSNACAFK	366	9						10121
HPV31	E1	DVKHKALMQLK	528	11						10122
HPV31	E1	DVMDDEIAYK	348	11						10123
HPV31	E1	EAVQVLKR	80	8						10124
HPV31	E1	EAVQVLKRK	80	9						10125
HPV31	E1	ELIRPFQSNK	201	10						10126
HPV31	E1	ELSDKNWK	583	8						10127
HPV31	E1	ETPEWIER	315	8						10128
HPV31	E1	FLKGVPKK	443	8						10129
HPV31	E1	FLKSNSQAK	372	9	0.0013	0.0002				10130
HPV31	E1	FLSALKLFLK	436	10						10131
HPV31	E1	FTFPNPFEDK	566	11						10132
HPV31	E1	FVFLSALK	433	9						10133
HPV31	E1	GMVMLMLVR	252	9						10134
HPV31	E1	GMVMLMLVRFK	252	11						10135
HPV31	E1	GSDGTHSER	157	9						10136
HPV31	E1	GTMCRHYK	386	8						10137
HPV31	E1	GTMCRHYKR	386	9						10138

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	E1	GTVAEGFK	225	8						10139
HPV31	E1	GVSEMLIR	196	9						10140
HPV31	E1	GVGTVAEGFK	222	11						10141
HPV31	E1	HAEAVQVLK	78	9						10142
HPV31	E1	HAEAVQVLKR	78	10						10143
HPV31	E1	HAEAVQVLKRK	78	11						10144
HPV31	E1	HSERENETPTR	162	11						10145
HPV31	E1	IISYANSK	478	8						10146
HPV31	E1	ILIHGAPNTGK	453	11						10147
HPV31	E1	ILQVLKTSNGK	174	11						10148
HPV31	E1	ITIEKLEK	268	9						10149
HPV31	E1	ITSNINAGK	544	9						10150
HPV31	E1	IVKDCGTMCR	381	10						10151
HPV31	E1	KAAMLGKFK	184	9						10152
HPV31	E1	KAICIENNSK	110	10						10153
HPV31	E1	KIVKDCGTMCR	380	11						10154
HPV31	E1	KLFLKGVPK	441	9						10155
HPV31	E1	KLFLKGVPKK	441	10						10156
HPV31	E1	KSFSRTWCR	590	10						10157
HPV31	E1	KSNSQAKIVK	374	10						10158
HPV31	E1	KVSDEGDWR	412	9						10159
HPV31	E1	LIHGAPNTGK	454	10						10160
HPV31	E1	LIQPPKLR	286	8						10161
HPV31	E1	LIRPFQSNK	202	9						10162
HPV31	E1	LITSNINAGK	543	10						10163
HPV31	E1	LLITSNINAGK	542	11						10164
HPV31	E1	LMLVRFKCAK	256	10						10165
HPV31	E1	LSALKLFLK	437	9						10166
HPV31	E1	LVRFKCAK	258	8						10167
HPV31	E1	LVRFKCAKNR	258	10						10168
HPV31	E1	MLIQPPKLR	285	9	0.0005	0.0014				10169
HPV31	E1	MLMLVRFK	255	8						10170
HPV31	E1	MLMLVRFKCAK	255	11						10171
HPV31	E1	MLVRFKCAK	257	9						10172
HPV31	E1	MLVRFKCAKNR	257	11						10173
HPV31	E1	MSMGQWIK	400	8						10174
HPV31	E1	MSMGQWIKSR	400	10						10175
HPV31	E1	MVMLMLVR	253	8						10176
HPV31	E1	MVMLMLVRFK	253	10						10177
HPV31	E1	NINAGKDDR	547	9						10178
HPV31	E1	NLHEEDK	601	8						10179
HPV31	E1	NSKTAKRR	117	8						10180
HPV31	E1	NSQAKIVK	376	8						10181
HPV31	E1	PTRNILQVLK	170	10						10182
HPV31	E1	PVSIDVKHK	524	9						10183
HPV31	E1	PVVELSDK	580	8						10184

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	E1	PVYELSDKNWK	580	11						10185
HPV31	E1	QMSMGQWIK	399	9						10186
HPV31	E1	QMSMGQWIKSR	399	11						10187
HPV31	E1	QVLKTSNGK	176	9						10188
HPV31	E1	RITIEKLLEK	267	10						10189
HPV31	E1	RLNLHEEEDK	599	10						10190
HPV31	E1	RSTAALYLYWR	293	11						10191
HPV31	E1	SALKFLK	438	8						10192
HPV31	E1	SMGQWIKSR	401	9						10193
HPV31	E1	SSCVDYNISPR	98	11						10194
HPV31	E1	STAAALYLYWR	294	10						10195
HPV31	E1	STNCMLIQPPK	281	11						10196
HPV31	E1	TAAALYLYWR	295	9						10197
HPV31	E1	TIEKLLEK	269	8						10198
HPV31	E1	TMCRRHYKR	387	8						10199
HPV31	E1	TMCRRHYKRAEK	387	11						10200
HPV31	E1	TSNGKAAMLGK	180	11						10201
HPV31	E1	TSNINAGK	545	8						10202
HPV31	E1	TSNINAGKDDR	545	11						10203
HPV31	E1	VLKTSNGK	177	8						10204
HPV31	E1	VMDDEIAYK	349	10						10205
HPV31	E1	VMLMLVRFK	254	9						10206
HPV31	E1	VSDEGDWR	413	8						10207
HPV31	E1	VSFLSALK	434	8						10208
HPV31	E1	VSMELIR	197	8						10209
HPV31	E1	VSDVVKHK	525	8						10210
HPV31	E1	VTGTVAEGFK	223	10						10211
HPV31	E1	WIKSRCDK	405	8						10212
HPV31	E1	WLQPLADAK	489	9	0.0005	0.0002				10213
HPV31	E1	YVEAVIDR	19	8						10214
HPV31	E2	AAACTNQTR	277	9						10215
HPV31	E2	AACTNQTR	278	8						10216
HPV31	E2	ALGTSEGVR	229	9						10217
HPV31	E2	ALGTSEGVRR	229	10						10218
HPV31	E2	ALSVSKAK	61	8						10219
HPV31	E2	ATTPIHLK	291	9						10220
HPV31	E2	ATTSTKRPR	239	9						10221
HPV31	E2	CALGTSEGVR	228	10						10222
HPV31	E2	CALGTSEGVRR	228	11						10223
HPV31	E2	CLRYRLSK	307	8						10224
HPV31	E2	CLRYRLSKYK	307	10						10225
HPV31	E2	CTVVEGVQVNC	145	11						10226
HPV31	E2	CVLMYKAR	40	8						10227
HPV31	E2	DANILKCLR	301	9						10228
HPV31	E2	DANILKCLRYR	301	11						10229
HPV31	E2	EAKKYGTGK	174	9						10230

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	E2	EAKYGTGKK	174	10						10231
HPV31	E2	EISFAGIVTK	204	10						10232
HPV31	E2	ETLNNTTEYK	80	9						10233
HPV31	E2	FVNFTEEAK	168	9						10234
HPV31	E2	FVNFTEEAKK	168	10						10235
HPV31	E2	GTSEGVRR	231	8						10236
HPV31	E2	GVRRAATTSTK	235	10						10237
HPV31	E2	GVRRAATTSTKR	235	11						10238
HPV31	E2	HIDYWKHIR	29	9						10239
HPV31	E2	HIRLECVLMYK	35	11						10240
HPV31	E2	HLKGDANILK	297	10						10241
HPV31	E2	ILEHYENDSK	15	10						10242
HPV31	E2	ILEHYENDSKR	15	11						10243
HPV31	E2	ILKCLRYR	304	8						10244
HPV31	E2	ILKCLRYRLSK	304	11						10245
HPV31	E2	ISAAACTNQTR	275	11						10246
HPV31	E2	ISFAGIVTK	205	9						10247
HPV31	E2	KILEHYENDSK	14	11						10248
HPV31	E2	LSQRLNVCQDK	4	11						10249
HPV31	E2	LTAPTGLK	103	9						10250
HPV31	E2	LTAPTGLCKK	103	10						10251
HPV31	E2	LYISTSQR	342	9						10252
HPV31	E2	MLETLNNTTEYK	78	11						10253
HPV31	E2	NILKCLRYR	303	9						10254
HPV31	E2	NTHHPNKLRL	254	10						10255
HPV31	E2	NTHMYTNWK	127	9						10256
HPV31	E2	NTTTSNSK	219	8						10257
HPV31	E2	PALSVSKAK	60	9						10258
HPV31	E2	PATTPHILK	290	10						10259
HPV31	E2	QVVPALSVSK	57	10						10260
HPV31	E2	RATTSTKR	238	8						10261
HPV31	E2	RATTSTKRPR	238	10						10262
HPV31	E2	RLCDHIDYWK	25	10						10263
HPV31	E2	RLECVLMYK	37	9						10264
HPV31	E2	RLECVLMYKAR	37	11						10265
HPV31	E2	RLNVCQDK	7	8						10266
HPV31	E2	SAAACTNQTR	276	10						10267
HPV31	E2	STWHWTCTDGK	324	11						10268
HPV31	E2	TANNTTTSNSK	216	11						10269
HPV31	E2	TAPTGLK	104	8						10270
HPV31	E2	TAPTGLCKK	104	9						10271
HPV31	E2	TLNNTTEYK	81	8						10272
HPV31	E2	TLTYISTSQR	341	10						10273
HPV31	E2	TMHYTNWK	128	8						10274
HPV31	E2	TTPIHLK	292	8						10275
HPV31	E2	TTSTKRPR	240	8						10276

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	E2	TVVEGQVNCK	146	10						10277
HPV31	E2	VTLYISTQQR	340	11						10278
HPV31	E2	VVEGQVNCK	147	9						10279
HPV31	E2	VVPALSVSK	58	9						10280
HPV31	E2	VVPALSVSKAK	58	11						10281
HPV31	E2	WTCDDGKHK	328	9						10282
HPV31	E2	YLTAPTGLCK	102	10						10283
HPV31	E2	YLTAPTGLCKK	102	11						10284
HPV31	E5	CVLLFVCLVIR	20	11						10285
HPV31	E5	ILWVIATPLR	48	11						10286
HPV31	E5	LLFVCLVIR	22	9						10287
HPV31	E5	VIATPLR	51	8						10288
HPV31	E5	VLLFVCLVIR	21	10						10289
HPV31	E5	WVIATPLR	50	9						10290
HPV31	E6	ALEIPYDELIR	18	10						10291
HPV31	E6	CIACWRRPR	136	9						10292
HPV31	E6	CTKCLRFYSK	63	10						10293
HPV31	E6	DLIRICITCQR	98	11						10294
HPV31	E6	DTPHGVCTK	57	9						10295
HPV31	E6	EIPYDELIR	20	8						10296
HPV31	E6	ELRLNCVYCK	25	10						10297
HPV31	E6	FAFTDLTIVYR	45	11						10298
HPV31	E6	FTDLTIVYR	47	9						10299
HPV31	E6	GICDLLIR	95	8						10300
HPV31	E6	GTLEKLTNK	85	10						10301
HPV31	E6	GVCTKCLR	61	8						10302
HPV31	E6	IACWRRPR	137	8						10303
HPV31	E6	KVSEFRWYR	72	9						10304
HPV31	E6	LIRICITCQR	100	9						10305
HPV31	E6	LLIRICITCQR	99	10						10306
HPV31	E6	NIGGRWTGR	127	9						10307
HPV31	E6	PLCPEEKQR	109	9	0.0002	0.0005				10308
HPV31	E6	RLNCVYCK	27	8						10309
HPV31	E6	SALEIPYDELIR	17	11						10310
HPV31	E6	SVYGTITLEK	82	9						10311
HPV31	E6	TLEKLTNK	87	8						10312
HPV31	E6	TTLEKLTNK	86	9						10313
HPV31	E6	VSEFRWYR	73	8						10314
HPV31	E6	WTGRCIACWR	132	10						10315
HPV31	E6	WTGRCIACWRR	132	11						10316
HPV31	E6	YSKVSEFR	70	8						10317
HPV31	E6	YSKVSEFRWYR	70	11						10318
HPV31	E6	YSVYGTITLEK	81	10						10319
HPV31	E7	CVQSTQVDIR	68	10						10320
HPV31	E7	GIVCPNCSTR	88	10						10321
HPV31	E7	IVCPNCSTR	89	9						10322

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	E7	IVTCCQCK	54	9						10323
HPV31	E7	NIVTCCQCK	53	10						10324
HPV31	E7	QSTQVDIR	70	8						10325
HPV31	E7	VTFCCQCK	55	8						10326
HPV31	L1	AALANSDDTFK	347	11						10327
HPV31	L1	AIANSDDTFK	348	10						10328
HPV31	L1	AITCQKTAQK	426	11						10329
HPV31	L1	AMDFTALQDTK	208	11						10330
HPV31	L1	ASTTTPAK	491	8						10331
HPV31	L1	ASTTTPAKR	491	9						10332
HPV31	L1	ASTTTPAKRK	491	10						10333
HPV31	L1	ASTTTPAKRKK	491	11						10334
HPV31	L1	CVGLEVGR	103	8						10335
HPV31	L1	DICNSICK	224	8						10336
HPV31	L1	DLDOFPLGR	459	9						10337
HPV31	L1	DLDOFPLGRK	459	10						10338
HPV31	L1	DLQFIFQLCK	372	10						10339
HPV31	L1	DTLFFYL	245	8						10340
HPV31	L1	DTLFFYLRR	245	9						10341
HPV31	L1	DTSFYNPETQR	88	11						10342
HPV31	L1	DTTFKSSNEK	353	10						10343
HPV31	L1	ESVPTDLYIK	270	10						10344
HPV31	L1	FLLQAGYR	469	8						10345
HPV31	L1	FLLQAGYRAR	469	10						10346
HPV31	L1	FTALQDTK	211	8						10347
HPV31	L1	FVRHFNRR	257	8						10348
HPV31	L1	FVTSQAITCQK	421	11						10349
HPV31	L1	FVTVVDTTR	331	9						10350
HPV31	L1	GISGHPLLNK	117	10						10351
HPV31	L1	GLQYRVFR	68	8						10352
HPV31	L1	GLQYRVFRVR	68	10						10353
HPV31	L1	GSLEDTYR	413	8						10354
HPV31	L1	IANSDDTFK	349	9						10355
HPV31	L1	ISGHPLLNK	118	9						10356
HPV31	L1	ITCQKTAQK	427	10						10357
HPV31	L1	KSSNFKEYLR	357	10						10358
HPV31	L1	KTAPQKPK	431	8						10359
HPV31	L1	KVSGLQYR	65	8						10360
HPV31	L1	KVSGLQYRVFR	65	11						10361
HPV31	L1	KVVSTDEYVTR	20	11						10362
HPV31	L1	LLQAGYRAR	470	9						10363
HPV31	L1	LLQAGYRARPK	470	11						10364
HPV31	L1	MVTSDAQIFNK	300	11						10365
HPV31	L1	NIYYHAGSAR	32	10						10366
HPV31	L1	NSICKYPDYLK	227	11						10367
HPV31	L1	PAKRKKTK	496	8						10368

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	L1	PAKRKKTKK	496	9						10369
HPV31	L1	PIGEHWGK	165	8						10370
HPV31	L1	PLDICNSICK	222	10						10371
HPV31	L1	PSASTTTTAK	489	10						10372
HPV31	L1	PSASTTTTAKR	489	11						10373
HPV31	L1	PSGSLEDTYR	411	10						10374
HPV31	L1	QAGYRARPK	472	9						10375
HPV31	L1	QAGYRARPKFK	472	11						10376
HPV31	L1	QIFNKPYWMQR	306	11						10377
HPV31	L1	QLCLLGCK	156	8						10378
HPV31	L1	QLFVTVVDTR	329	11						10379
HPV31	L1	QMFVRHFFNR	255	10						10380
HPV31	L1	QTQLCLLGCK	154	10						10381
HPV31	L1	RARPKFKAGK	476	10						10382
HPV31	L1	RARPKFKAGKR	476	11						10383
HPV31	L1	RVRLDPNPK	75	9						10384
HPV31	L1	SADLDQFPLGR	457	11						10385
HPV31	L1	SASTTTTAK	490	9						10386
HPV31	L1	SASTTTTAKR	490	10						10387
HPV31	L1	SASTTTTAKRK	490	11						10388
HPV31	L1	SICKYPDYLK	228	10						10389
HPV31	L1	SIPKSDNPK	51	9						10390
HPV31	L1	SIPKSDNPKK	51	10						10391
HPV31	L1	SSNFKEYLR	358	9						10392
HPV31	L1	STDEVVTR	23	8						10393
HPV31	L1	STTTTAKR	492	8						10394
HPV31	L1	STTTTAKRK	492	9						10395
HPV31	L1	STTTTAKRKK	492	10						10396
HPV31	L1	SVPTDLYIK	271	9						10397
HPV31	L1	TLFFYLRR	246	8						10398
HPV31	L1	TSDAQIFNK	302	9						10399
HPV31	L1	TSFYNPETQR	89	10						10400
HPV31	L1	TSQAITCQK	423	9						10401
HPV31	L1	TTFKSSNFK	354	9						10402
HPV31	L1	TTTAKRKK	494	8						10403
HPV31	L1	TTTAKRKKTK	494	10						10404
HPV31	L1	TTTAKRKKTKK	494	11						10405
HPV31	L1	TTTAKRKK	493	8						10406
HPV31	L1	TTTAKRKKK	493	9						10407
HPV31	L1	TTTAKRKKKTK	493	11						10408
HPV31	L1	TVGHPPYSIPK	44	11						10409
HPV31	L1	TVYLPVPVPSK	10	11						10410
HPV31	L1	VSGLQYRVFR	66	10						10411
HPV31	L1	VSTDEYVTR	22	9						10412
HPV31	L1	VTSDAQIFNK	301	10						10413
HPV31	L1	VTSQAITCQK	422	10						10414

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	L1	VTVDVTR	332	8						10415
HPV31	L1	VVPKVSGLQYR	62	11						10416
HPV31	L1	VVSTDÉYVTR	21	10						10417
HPV31	L1	WACVGLGVGR	101	10						10418
HPV31	L1	YAGPGTDNR	136	10						10419
HPV31	L1	YLPVPVPSK	12	9						10420
HPV31	L1	YLRREQMFVR	250	10						10421
HPV31	L1	YSIPKSDNPK	50	10						10422
HPV31	L1	YSIPKSDNPKK	50	11						10423
HPV31	L1	YVFEVNLK	445	9						10424
HPV31	L1	YVFEVNLKEK	445	11						10425
HPV31	L2	ALHRPALTSR	281	10						10426
HPV31	L2	ALHRPALTSTR	281	11						10427
HPV31	L2	ALTSRRNTVR	286	10						10428
HPV31	L2	ASATQLYQTCK	13	11						10429
HPV31	L2	ATQLYQTCK	15	9						10430
HPV31	L2	FLDIILHR	276	9						10431
HPV31	L2	GIGSGSGTGGR	59	11						10432
HPV31	L2	GLYSKATQQVK	221	11						10433
HPV31	L2	GSGSGTGGR	61	9						10434
HPV31	L2	GTCPSDVIPK	26	10						10435
HPV31	L2	HTTIADQLR	38	10						10436
HPV31	L2	IALHRPALTSTR	280	11						10437
HPV31	L2	ITSSTPIPGVR	205	11						10438
HPV31	L2	LTSRRNTVR	287	9						10439
HPV31	L2	MLKRRKR	447	8						10440
HPV31	L2	NTVRSRLGNK	292	11						10441
HPV31	L2	PALTSRRNTVR	285	11						10442
HPV31	L2	PARLGLYSK	217	9						10443
HPV31	L2	PIPGVRRPAR	210	10						10444
HPV31	L2	PSYYMLKR	443	8						10445
HPV31	L2	PSYYMLKRR	443	9						10446
HPV31	L2	PSYYMLKRRR	443	10						10447
HPV31	L2	PSYYMLKRRRK	443	11						10448
HPV31	L2	PTFLSAPK	235	8						10449
HPV31	L2	RLGNKQTLR	298	9						10450
HPV31	L2	RLGNKQTLRTR	298	11						10451
HPV31	L2	RSGATIGAR	308	9						10452
HPV31	L2	RSKRSTKR	2	8						10453
HPV31	L2	RSKRSTKRTK	2	10						10454
HPV31	L2	RSKRSTKRTKR	2	11						10455
HPV31	L2	RSTKRTKR	5	8						10456
HPV31	L2	RTGYVPLSTR	69	10						10457
HPV31	L2	RTRSGATIGAR	306	11						10458
HPV31	L2	SATQLYQTCK	14	10						10459
HPV31	L2	SSTPIPGVR	207	9						10460

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV31	L2	SSTPIPGVRR	207	10						10461
HPV31	L2	STPIPGVR	208	8						10462
HPV31	L2	STPIPGVRR	208	9						10463
HPV31	L2	STVSEASIPR	80	11						10464
HPV31	L2	TIADQILR	40	8						10465
HPV31	L2	TSRRNTVR	288	8						10466
HPV31	L2	TSRRNTVRSR	288	11						10467
HPV31	L2	TSSTPIGVR	206	10						10468
HPV31	L2	TSSTPIGVRR	206	11						10469
HPV31	L2	TTIADQILR	39	9						10470
HPV31	L2	TVRYSRLGNK	293	10						10471
HPV31	L2	TVSEASIPR	81	10						10472
HPV31	L2	VIDPTFLSAPK	232	11						10473
HPV31	L2	VSEASIPR	82	9						10474
HPV31	L2	YLHPSYYMLK	440	10						10475
HPV31	L2	YLHPSYYMLKR	440	11						10476
HPV31	L2	YMLKRRRK	446	8						10477
HPV31	L2	YMLKRRRRK	446	9						10478
HPV31	L2	YSKATQVVK	223	9						10479
HPV31	L2	YSRLGNKQTLR	296	11						10480
HPV31	E1	AAEDVVDR	96	8						10481
HPV33	E1	AAFLKNSQAK	383	11						10482
HPV33	E1	AANPCRTSINK	104	11						10483
HPV33	E1	AINDENWK	596	8						10484
HPV33	E1	AVCALKRK	81	8						10485
HPV33	E1	CMVIEPPK	297	8						10486
HPV33	E1	CMVIEPPKLR	297	10						10487
HPV33	E1	CSAGENTR	633	8						10488
HPV33	E1	CSAGENTRSLR	633	11						10489
HPV33	E1	CSKNRLTVAK	276	10						10490
HPV33	E1	CVISCVNSK	490	9						10491
HPV33	E1	DLIEEDK	614	8						10492
HPV33	E1	DLNAVCAK	78	9						10493
HPV33	E1	DLNAVCAKLR	78	10						10494
HPV33	E1	DLNAVCAKLRK	78	11						10495
HPV33	E1	DSNSNAFAFLK	377	11						10496
HPV33	E1	DSRWPLYLSR	566	10						10497
HPV33	E1	DVKHRLVQLK	541	11						10498
HPV33	E1	DVVDRAANPCR	99	11						10499
HPV33	E1	EISIDVKHR	537	9						10500
HPV33	E1	ELVRPFKSDK	214	10						10501
HPV33	E1	ESLKVLK	242	8						10502
HPV33	E1	ETCMVIEPPK	295	10						10503
HPV33	E1	EVEAVIER	19	8						10504
HPV33	E1	EVEAVIERR	19	9						10505
HPV33	E1	FLGAFKKFLK	449	10						10506

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	E1	FLKGIPKK	456	8						10507
HPV33	E1	FLKSNSQAK	385	9						10508
HPV33	E1	FMELVRPFK	212	9						10509
HPV33	E1	FTAFLGAFK	446	9						10510
HPV33	E1	FTAFLGAFKK	446	10						10511
HPV33	E1	GAFKKFLK	451	8						10512
HPV33	E1	GIHLLLR	265	9						10513
HPV33	E1	GIHLLLRFR	265	11						10514
HPV33	E1	GIMCRHYK	399	8						10515
HPV33	E1	GIMCRHYKK	399	9						10516
HPV33	E1	GISFMELVR	209	9						10517
HPV33	E1	GISPSVAESLK	235	11						10518
HPV33	E1	GMSLIQFLK	480	9						10519
HPV33	E1	GTTPEWIDR	327	9						10520
HPV33	E1	HLQCLTCDR	256	9						10521
HPV33	E1	HSRLTVFEFK	573	10						10522
HPV33	E1	IIHLLLR	266	8						10523
HPV33	E1	IIHLLLRFR	266	10						10524
HPV33	E1	IIHLLLRFR	267	9						10525
HPV33	E1	ILLLRFR	268	8						10526
HPV33	E1	ILLLRFRCSK	268	11						10527
HPV33	E1	IMCRHYKK	400	8						10528
HPV33	E1	IMCRHYKKAEK	400	11						10529
HPV33	E1	ISFMELVR	210	8						10530
HPV33	E1	ISFMELVRPFK	210	11						10531
HPV33	E1	ISIDVKHR	538	8						10532
HPV33	E1	ISNVLHSSNTK	187	11						10533
HPV33	E1	ISPSVAESLK	236	10						10534
HPV33	E1	ISWTYIDDYMR	520	11						10535
HPV33	E1	IVKDCGIMCR	394	10						10536
HPV33	E1	KANILYKFK	197	9						10537
HPV33	E1	KIVKDCGIMCR	393	11						10538
HPV33	E1	KLDLIEEDK	612	10						10539
HPV33	E1	KMSIGQWIOSR	412	11						10540
HPV33	E1	KSFFSRTWCK	603	10						10541
HPV33	E1	KSNSQAKIVK	387	10						10542
HPV33	E1	KTNDGGNWR	425	9						10543
HPV33	E1	LICGPANTGK	467	10						10544
HPV33	E1	LIRFCRSK	271	8						10545
HPV33	E1	LIRFCRSKNR	271	10						10546
HPV33	E1	LLIRFCRSK	270	9						10547
HPV33	E1	LLIRFCRSKNR	270	11						10548
HPV33	E1	LLIRFCRSK	269	10						10549
HPV33	E1	LVRPFKSDK	215	9						10550
HPV33	E1	MLICGPANTGK	466	11						10551
HPV33	E1	MSIGQWIOSR	413	10						10552

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	E1	MSLIQFLK	481	8						10553
HPV33	E1	MVIEPKLR	298	9						10554
HPV33	E1	NAVCAIKR	80	8						10555
HPV33	E1	NAVCAIKR	80	9						10556
HPV33	E1	NSIQADTEAAR	57	11						10557
HPV33	E1	NSNAFAFLK	379	9						10558
HPV33	E1	NSQAKIVK	389	8	0.0057	0.3700				10559
HPV33	E1	NTKANILYK	195	9						10560
HPV33	E1	NTKANILYKFK	195	11						10561
HPV33	E1	NTNAGTDSR	560	9						10562
HPV33	E1	NVLHSSNTK	189	9						10563
HPV33	E1	PSVAESLK	238	8						10564
HPV33	E1	PVYAINDENWK	593	11						10565
HPV33	E1	QADTEAAR	60	8						10566
HPV33	E1	QSAEDVVDR	94	10						10567
HPV33	E1	QTCALYWFR	308	9						10568
HPV33	E1	RLTVFEFK	575	8						10569
HPV33	E1	RSQTCALYWFR	306	11						10570
HPV33	E1	RTSINKNK	109	8						10571
HPV33	E1	SAEDVVDR	95	9						10572
HPV33	E1	SAGENTRSLR	634	10						10573
HPV33	E1	SIGQWQSR	414	9						10574
HPV33	E1	SINKNCECTYR	111	11						10575
HPV33	E1	SIQADTEAAR	58	10						10576
HPV33	E1	SSNTKANILYK	193	11						10577
HPV33	E1	SVAESLKVLIK	239	11						10578
HPV33	E1	TAFLGAFK	447	8						10579
HPV33	E1	TAFLGAFKK	447	9						10580
HPV33	E1	TSNTNAGTDSR	558	11						10581
HPV33	E1	TTPIEWIDR	328	8						10582
HPV33	E1	VAESLKVLIK	240	10						10583
HPV33	E1	VIEPKLR	299	8						10584
HPV33	E1	VISCVNSK	491	8						10585
HPV33	E1	VLHSSNTK	190	8						10586
HPV33	E1	VVDRAANPCR	100	10						10587
HPV33	E1	WQSRCEK	418	8						10588
HPV33	E1	WLQPLSDAK	502	9						10589
HPV33	E1	WTYIDYMR	522	9						10590
HPV33	E1	YAINDENWK	595	9						10591
HPV33	E1	YTHLQCLTCDR	254	11						10592
HPV33	E1	ALDNRTAR	249	8						10593
HPV33	E2	ATNCTNKQR	258	9						10594
HPV33	E2	CADPALDNR	245	9						10595
HPV33	E2	CALLYTAK	40	8						10596
HPV33	E2	CLRYRLKPYK	288	10						10597
HPV33	E2	DIQTNDNR	211	9						10598

3425733 82574360
Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	E2	DLPSQIEHWK	25	10						10599
HPV33	E2	DTAQPLTK	235	8						10600
HPV33	E2	DTCTMVTGK	143	9						10601
HPV33	E2	DTTDTAQPLTK	232	11						10602
HPV33	E2	ELQMALETLSK	74	11						10603
HPV33	E2	ESNSLKCLR	282	9						10604
HPV33	E2	ESNSLKCLRYR	282	11						10605
HPV33	E2	ETVTQYDNDK	115	11						10606
HPV33	E2	EVWLCEPPK	100	9						10607
HPV33	E2	GMYYIHNECK	156	10						10608
HPV33	E2	HLKGESNSLK	278	10						10609
HPV33	E2	ILDLYEADK	15	9						10610
HPV33	E2	ISARLNAVQEK	4	11						10611
HPV33	E2	KILDLYEADK	14	10						10612
HPV33	E2	KVYFKYFK	165	8						10613
HPV33	E2	MALETLSK	77	8						10614
HPV33	E2	NSLKCLRYR	284	9						10615
HPV33	E2	NSLKCLRYRLK	284	11						10616
HPV33	E2	NVAPVHLK	272	9						10617
HPV33	E2	PALDNRTAR	248	9						10618
HPV33	E2	PSLLASKTK	60	9						10619
HPV33	E2	PSQIEHWK	27	8						10620
HPV33	E2	PSQIEHWKLIIR	27	11						10621
HPV33	E2	QAAAKRRR	222	8						10622
HPV33	E2	QIEHWKLIIR	29	9						10623
HPV33	E2	QMALETLSK	76	9						10624
HPV33	E2	QMFLGTVK	332	8						10625
HPV33	E2	QVVPSSLASK	57	10						10626
HPV33	E2	RLNAVQEK	7	8						10627
HPV33	E2	RMECALLYTAK	37	11						10628
HPV33	E2	RTATNCTNK	256	9						10629
HPV33	E2	RTATNCTNKQR	256	11						10630
HPV33	E2	SARLNAVQEK	5	10						10631
HPV33	E2	SLEVWLCEPPK	98	11						10632
HPV33	E2	SLKCLRYR	285	8						10633
HPV33	E2	SLKCLRYRLK	285	10						10634
HPV33	E2	SLLASKTK	61	8						10635
HPV33	E2	SSNVAPIVHLK	270	11						10636
HPV33	E2	SSTWHWTSDNK	304	11						10637
HPV33	E2	STWHWTSDNK	305	10						10638
HPV33	E2	TADIQTNDNR	209	11						10639
HPV33	E2	TARTATNCTNK	254	11						10640
HPV33	E2	TATNCTNK	257	8						10641
HPV33	E2	TATNCTNKQR	257	10						10642
HPV33	E2	TSDNKNKSK	310	8						10643
HPV33	E2	TTDTAQPLTK	233	10						10644

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	E2	TVQYDNDK	118	8						10645
HPV33	E2	TVQYDNDKK	118	9						10646
HPV33	E2	TVTVQYDNDK	116	10						10647
HPV33	E2	TVTVQYDNDKK	116	11						10648
HPV33	E2	VAPIVHLK	273	8						10649
HPV33	E2	VTVQYDNDK	117	9						10650
HPV33	E2	VTVQYDNDKK	117	10						10651
HPV33	E2	VVPSLLASK	58	9						10652
HPV33	E2	VVPSLLASKTK	58	11						10653
HPV33	E2	WLCEPPKCFK	102	10						10654
HPV33	E2	WLCEPPKCFKK	102	11						10655
HPV33	E2	WTSNKNKSK	309	9						10656
HPV33	E2	YHNCEKVYFK	159	11						10657
HPV33	E5	FLCLSLLR	12	9						10658
HPV33	E5	ILFLCLSLLR	10	11						10659
HPV33	E5	LLWVFGSPLK	38	11						10660
HPV33	E5	WVFGSPLK	40	9						10661
HPV33	E6	AACWRSRR	137	8						10662
HPV33	E6	AACWRSRRR	137	9						10663
HPV33	E6	CAACWRSR	136	8						10664
HPV33	E6	CAACWRSRR	136	9						10665
HPV33	E6	CAACWRSRRR	136	10						10666
HPV33	E6	CVECKKPLQR	30	10						10667
HPV33	E6	ELIRCICQR	98	11						10668
HPV33	E6	ELQCVECK	27	8						10669
HPV33	E6	ELQCVECKK	27	9						10670
HPV33	E6	FADLTVVYR	47	9						10671
HPV33	E6	FAFADLTVVYR	45	11						10672
HPV33	E6	FLSKISEYR	69	9						10673
HPV33	E6	GICKLCLR	61	8						10674
HPV33	E6	ILIRCICQR	99	10						10675
HPV33	E6	ISGRWAGR	128	8						10676
HPV33	E6	KLCRLRFLSK	64	9						10677
HPV33	E6	LIRCICQR	100	9						10678
HPV33	E6	LSKISEYR	70	8						10679
HPV33	E6	NIELQCVECK	25	10						10680
HPV33	E6	NIELQCVECKK	25	11						10681
HPV33	E6	NISGRWAGR	127	9						10682
HPV33	E6	NTLEQTVK	86	8						10683
HPV33	E6	NTLEQTVKK	86	9						10684
HPV33	E6	PLCPQEKK	109	8						10685
HPV33	E6	PLCPQEKKR	109	9						10686
HPV33	E6	PLNEILR	95	8						10687
HPV33	E6	TLEQTVKK	87	8						10688
HPV33	E6	WAGRCAACWR	132	10						10689
HPV33	E7	CVNSTASDLR	68	10						10690

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	E7	DSSDEDEGLDR	30	11						10691
HPV33	E7	HTCNTTVR	59	8						10692
HPV33	E7	NSTASDLR	70	8						10693
HPV33	E7	SSDEDEGLDR	31	10						10694
HPV33	L1	AITCQKTVPPK	424	11						10695
HPV33	L1	ASLQDTYR	411	8						10696
HPV33	L1	AVGHPYFSIK	44	10						10697
HPV33	L1	AVPDDLVIK	270	9						10698
HPV33	L1	CMDFKTLQANK	207	11						10699
HPV33	L1	CTQVTSSTYK	345	11						10700
HPV33	L1	CVGLEIR	103	8						10701
HPV33	L1	DICGSTCK	223	8						10702
HPV33	L1	DLQDFPLGR	457	9						10703
HPV33	L1	DLQDFPLGRK	457	10						10704
HPV33	L1	DLQFVQLCK	370	10						10705
HPV33	L1	DSLFFFLR	244	8						10706
HPV33	L1	DSLFFFLRR	244	9						10707
HPV33	L1	DSTYKNEFK	351	10						10708
HPV33	L1	DTFGCMDFK	202	10						10709
HPV33	L1	DTSFYNPDQTR	88	11						10710
HPV33	L1	EAVPDDLVIK	269	10						10711
HPV33	L1	FLLQAGLK	467	8						10712
HPV33	L1	FLQAGLKAK	467	10						10713
HPV33	L1	FLRQMFVR	249	10						10714
HPV33	L1	FSIKNPTNAK	50	10						10715
HPV33	L1	FSIKNPTNAKK	50	11						10716
HPV33	L1	FVRHFFNR	256	8						10717
HPV33	L1	FVTSQAITCQK	419	11						10718
HPV33	L1	FVTVDITR	330	9						10719
HPV33	L1	GISGHPLLNK	117	10						10720
HPV33	L1	GLKAKPKLK	472	9						10721
HPV33	L1	GLKAKPKLKR	472	10						10722
HPV33	L1	GLQYRVFR	68	8						10723
HPV33	L1	GLQYRVFRVR	68	10						10724
HPV33	L1	GSTCKYPDYLK	226	11						10725
HPV33	L1	ISGHPLLNK	118	9						10726
HPV33	L1	ITCQKTVPPK	425	10						10727
HPV33	L1	KAKPKLKR	474	8						10728
HPV33	L1	KLKRAAPTSTR	478	11						10729
HPV33	L1	KTVPPKEK	429	8						10730
HPV33	L1	KVSGLQYR	65	8						10731
HPV33	L1	KVSGLQYRVFR	65	11						10732
HPV33	L1	KVSTDEYVSR	20	11						10733
HPV33	L1	LAVGHPYFSIK	43	11						10734
HPV33	L1	LLQAGLKAK	468	9						10735
HPV33	L1	LLQAGLKAKPK	468	11						10736

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	L1	LVPKVSGLQYR	62	11						10737
HPV33	L1	MVTSESQLFNK	299	11						10738
HPV33	L1	NAKKLLVPK	57	9						10739
HPV33	L1	PIDICGSTCK	221	10						10740
HPV33	L1	PSASLQDTYR	409	10						10741
HPV33	L1	PTGEHWGK	165	8						10742
HPV33	L1	PTNAKKLLVPK	55	11						10743
HPV33	L1	PTSTRTSSAK	484	10						10744
HPV33	L1	PTSTRTSSAKR	484	11						10745
HPV33	L1	QAGLKAKPK	470	9						10746
HPV33	L1	QAGLKAKPKLK	470	11						10747
HPV33	L1	QLCLLGCK	156	8						10748
HPV33	L1	QLFNKPYWLQR	305	11						10749
HPV33	L1	QMFVRHFNR	254	10						10750
HPV33	L1	QTQLCLLGCK	154	10						10751
HPV33	L1	QVFVTVDTR	328	11						10752
HPV33	L1	QVTSDDSTYK	347	9						10753
HPV33	L1	RAAPTSTR	481	8						10754
HPV33	L1	RTSSAKRK	488	8						10755
HPV33	L1	RTSSAKRKK	488	9						10756
HPV33	L1	RTSSAKRKKVK	488	11						10757
HPV33	L1	RVRLDPNK	75	9						10758
HPV33	L1	SADLDQPLGR	455	11						10759
HPV33	L1	SAKRKKVK	491	8						10760
HPV33	L1	SAKRKKVKK	491	9						10761
HPV33	L1	SASLQDTYR	410	9						10762
HPV33	L1	SIKNPTNAK	51	9						10763
HPV33	L1	SIKNPTNAKK	51	10						10764
HPV33	L1	SIYYAGSSR	32	10						10765
HPV33	L1	SLFFFLRR	245	8						10766
HPV33	L1	SSAKRKKVK	490	9						10767
HPV33	L1	SSAKRKKVKK	490	10						10768
HPV33	L1	STCKYPDYLK	227	10						10769
HPV33	L1	STDEYVSR	23	8						10770
HPV33	L1	STRTSSAK	486	8						10771
HPV33	L1	STRTSSAKR	486	9						10772
HPV33	L1	STRTSSAKRK	486	10						10773
HPV33	L1	STRTSSAKRKK	486	11						10774
HPV33	L1	STYKNENFK	352	9						10775
HPV33	L1	TSESQLFNK	301	9						10776
HPV33	L1	TSFYNPDTQR	89	10						10777
HPV33	L1	TSIYYAGSSR	31	11						10778
HPV33	L1	TSQAITCQK	421	9						10779
HPV33	L1	TSSAKRKK	489	8						10780
HPV33	L1	TSSAKRKKVK	489	10						10781
HPV33	L1	TSSAKRKKVKK	489	11						10782

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV33	L1	TSTRTSSAK	485	9						10783
HPV33	L1	TSTRTSSAKR	485	10						10784
HPV33	L1	TSTRTSSAKRK	485	11						10785
HPV33	L1	TVYLPVPVPSK	10	11						10786
HPV33	L1	VSGLQYRVFR	66	10						10787
HPV33	L1	VSTDEVYSR	22	9						10788
HPV33	L1	VTSDSTYK	348	8						10789
HPV33	L1	VTSEQLFNK	300	10						10790
HPV33	L1	VTSAITCQK	420	10						10791
HPV33	L1	VTVVDITR	331	8						10792
HPV33	L1	VVSTDEVYSR	21	10						10793
HPV33	L1	WACVGLGIR	101	10						10794
HPV33	L1	YLPVPVPSK	12	9						10795
HPV33	L1	YTFWEVDLK	443	9						10796
HPV33	L1	YTFWEVDLKEK	443	11						10797
HPV33	L1	AAIPLQPIR	81	9						10798
HPV33	L2	AIPLQPIR	82	8						10799
HPV33	L2	AITSRRHTVR	291	10						10800
HPV33	L2	ALHRPAITSR	286	10						10801
HPV33	L2	ALHRPAITSRR	286	11						10802
HPV33	L2	ASATQLYQTCK	12	11						10803
HPV33	L2	ATLKTRSGK	308	9						10804
HPV33	L2	ATQLYQTCK	14	9						10805
HPV33	L2	FILRRRRK	447	8						10806
HPV33	L2	FILRRRRKR	447	9						10807
HPV33	L2	FLDIALLHR	281	9						10808
HPV33	L2	FSRVGQKATLK	301	11						10809
HPV33	L2	FVLHPSYFILR	440	11						10810
HPV33	L2	GIGTSGSGGR	58	11						10811
HPV33	L2	GLYSRNTQQVK	226	11						10812
HPV33	L2	GSTIADQILK	37	10						10813
HPV33	L2	GTCPPDVIPK	25	10						10814
HPV33	L2	GTGSGSGGR	60	9						10815
HPV33	L2	HSYSTFAITR	379	10						10816
HPV33	L2	HTVFRSVGQK	297	11						10817
HPV33	L2	IALLHRPAITSR	285	11						10818
HPV33	L2	ILRRRRKR	448	8						10819
HPV33	L2	ITSRRHTVR	292	9						10820
HPV33	L2	KATLKTRSGK	307	10						10821
HPV33	L2	KTRSGKQIGAR	311	11						10822
HPV33	L2	PAFLTSPHK	240	9						10823
HPV33	L2	PAITSRRHTVR	290	11						10824
HPV33	L2	PIPGSRPVAR	215	10						10825
HPV33	L2	PSYFILRR	444	8						10826
HPV33	L2	PSYFILRRR	444	9						10827
HPV33	L2	PSYFILRRRR	444	10						10828

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	E1	ELKELLQASNK	186	11						10875
HPV45	E1	ELLQASNK	189	8						10876
HPV45	E1	ELIQASNKK	189	9						10877
HPV45	E1	ETCMLIEPPK	295	10						10878
HPV45	E1	FISFLRALK	446	9						10879
HPV45	E1	FLKGTGPK	456	8						10880
HPV45	E1	FLKSNCQAK	385	9	0.0035	0.0007				10881
HPV45	E1	FLRALKEFLK	449	10						10882
HPV45	E1	FTDLVRNFK	212	9						10883
HPV45	E1	FTFPHPFPDK	579	11						10884
HPV45	E1	FVETIVEK	19	8						10885
HPV45	E1	FVETIVEKK	19	9						10886
HPV45	E1	GIPFGTEK	626	8						10887
HPV45	E1	GLSFTDLVR	209	9	0.0009	0.0025				10888
HPV45	E1	GVEFISFLR	443	9	0.0058	0.1400				10889
HPV45	E1	GVILALLR	265	9						10890
HPV45	E1	GVILALLRYK	265	11						10891
HPV45	E1	GVNPTVAEGFK	235	11						10892
HPV45	E1	HIQCLDCK	256	8						10893
HPV45	E1	ILALLRYK	268	8						10894
HPV45	E1	ILALLRYKCGK	268	11						10895
HPV45	E1	ILLTSNIDPAK	555	11						10896
HPV45	E1	ILLYGPANTGK	466	11						10897
HPV45	E1	ISFLRALK	447	8						10898
HPV45	E1	ISIDRKHK	538	8						10899
HPV45	E1	ISLNSGHK	116	8						10900
HPV45	E1	ISLNSGHKK	116	9						10901
HPV45	E1	ISLNSGHKKAK	116	11						10902
HPV45	E1	KAAMLAVFK	197	9						10903
HPV45	E1	KIDEGDWR	425	9						10904
HPV45	E1	KSNCQAKYLK	387	10						10905
HPV45	E1	LALLRYKCGK	269	10						10906
HPV45	E1	LIEPPKLR	299	8						10907
HPV45	E1	LILALLRYK	267	9	0.2700	0.1800				10908
HPV45	E1	LLKRFAGGSK	84	11						10909
HPV45	E1	LIQASNKK	190	8						10910
HPV45	E1	LLRYKCGK	271	8						10911
HPV45	E1	LLRYKCGKNR	271	10						10912
HPV45	E1	LLTSNIDPAK	556	10						10913
HPV45	E1	LLYGPAANTGK	467	10						10914
HPV45	E1	LSFTDLVR	210	8						10915
HPV45	E1	LSFTDLVRNFK	210	11						10916
HPV45	E1	LSVDTLSPR	103	10						10917
HPV45	E1	LTSNIDPAK	557	9						10918
HPV45	E1	LVRNFKSDK	215	9	0.0005	0.0002				10919
HPV45	E1	MLIEPPKLR	298	9						10920

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	E1	MSQWIKYR	415	8						10921
HPV45	E1	MSQWIKYRCSK	415	11						10922
HPV45	E1	NIDPAKDNK	560	9						10923
HPV45	E1	NMSQWIKYR	414	9						10924
HPV45	E1	NSGHKKAK	119	8						10925
HPV45	E1	NSGHKKAKR	119	9						10926
HPV45	E1	NSGHKKAKRR	119	10						10927
HPV45	E1	NSNAAAFK	379	9	0.0057	0.3700				10928
HPV45	E1	PISIDRKHK	537	9						10929
HPV45	E1	PVYAEQFK	238	8						10930
HPV45	E1	PVYEINDK	593	8						10931
HPV45	E1	PVYEINDKNWK	593	11						10932
HPV45	E1	QLSVDTDLSPR	102	11						10933
HPV45	E1	QMNMSQWIK	412	9						10934
HPV45	E1	QMNMSQWIKYR	412	11						10935
HPV45	E1	QVLHLLKR	80	8						10936
HPV45	E1	QVLHLLKRK	80	9						10937
HPV45	E1	RALKEFLK	451	8						10938
HPV45	E1	RSSVAALYWYR	306	11						10939
HPV45	E1	SLNSGHKK	117	8						10940
HPV45	E1	SLNSGHKKAK	117	10						10941
HPV45	E1	SLNSGHKKAKR	117	11						10942
HPV45	E1	SSVAALYWYR	307	10						10943
HPV45	E1	SVAALYWYR	308	9	2.9000	8.8000				10944
HPV45	E1	SVDTDLSR	104	9						10945
HPV45	E1	TSNIDPAK	558	8						10946
HPV45	E1	TSNIDPAKDNK	558	11						10947
HPV45	E1	TVAEGFKTLIK	239	11						10948
HPV45	E1	VAALYWYR	309	8						10949
HPV45	E1	VAEGFKTLIK	240	10						10950
HPV45	E1	VLHLLKRK	81	8						10951
HPV45	E1	VLILALLR	266	8						10952
HPV45	E1	VLILALLRYK	266	10						10953
HPV45	E1	VMCRHYKR	400	8						10954
HPV45	E1	VMCRHYKRAQK	400	11						10955
HPV45	E1	VSGDTPEWIQR	325	11						10956
HPV45	E1	WIKYRCSK	418	8						10957
HPV45	E1	WLEPLADTK	502	9						10958
HPV45	E1	WTFYFDNYMR	522	9						10959
HPV45	E1	YAHIOCLDCK	254	10						10960
HPV45	E1	YLKDCAVMCR	394	10						10961
HPV45	E2	AIELQMAK	78	9						10962
HPV45	E2	ALKGLAQSK	84	9						10963
HPV45	E2	CLRYRLRK	305	8						10964
HPV45	E2	CSSTSNNK	274	8						10965
HPV45	E2	CSSTSNNKR	274	9						10966

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	E2	CSSTSNKRR	274	10						10967
HPV45	E2	CSSTSNKRRK	274	11						10968
HPV45	E2	CVSYWGVYIK	158	11						10969
HPV45	E2	DTYYVQFK	171	9						10970
HPV45	E2	DTVSATQIVR	212	10						10971
HPV45	E2	FTAREHGITK	50	10						10972
HPV45	E2	GLTEQHHR	255	9						10973
HPV45	E2	HASTSTPK	225	8						10974
HPV45	E2	HIQTPATK	242	8						10975
HPV45	E2	HIQTPATKR	242	9						10976
HPV45	E2	HIQTPATKRPR	242	11						10977
HPV45	E2	HLKGDKNLKL	295	10						10978
HPV45	E2	HVYFDGNK	124	8						10979
HPV45	E2	IHLKGDK	293	8						10980
HPV45	E2	ILDHYENDSK	21	10						10981
HPV45	E2	ISKSKAHK	70	8						10982
HPV45	E2	ISYWQLIR	36	8						10983
HPV45	E2	ITETGIWDK	146	9						10984
HPV45	E2	KAEIQMALK	77	10						10985
HPV45	E2	KILDHYENDSK	20	11						10986
HPV45	E2	KTASVGTPK	232	9						10987
HPV45	E2	KTIVHYFDGNK	121	11						10988
HPV45	E2	LLCSSTSNK	272	10						10989
HPV45	E2	LLCSSTSNKR	272	11						10990
HPV45	E2	LSERLSALQDK	10	11						10991
HPV45	E2	LTEQHHR	256	8						10992
HPV45	E2	LTVTYNSEVQR	336	11						10993
HPV45	E2	MALKGQAQSK	83	10						10994
HPV45	E2	NAILFTAR	46	8						10995
HPV45	E2	NISKSKAHK	69	9						10996
HPV45	E2	NSLKLRLR	301	9						10997
HPV45	E2	NSLKLRLRLR	301	11						10998
HPV45	E2	NSQISYWQLIR	33	11						10999
HPV45	E2	NTEPSQCFK	109	9						11000
HPV45	E2	NTEPSQCFKK	289	10						11001
HPV45	E2	NTPIHLK	292	9						11002
HPV45	E2	PIHLKGDK	292	9						11003
HPV45	E2	PINISKSK	67	8						11004
HPV45	E2	PINISKSKAHK	67	11						11005
HPV45	E2	PLLCSTSNK	271	11						11006
HPV45	E2	PSQCFKKGGK	112	10						11007
HPV45	E2	QISYWQLIR	35	9						11008
HPV45	E2	QLQHASTTPK	222	11						11009
HPV45	E2	QMALKGQAQSK	82	11						11010
HPV45	E2	QTPATKRPR	244	9						11011
HPV45	E2	QTPKESLSER	4	10						11012

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 A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	E2	QVVPINISK	63	10						11013
HPV45	E2	RLNALFTAR	43	11						11014
HPV45	E2	RLSALQDK	13	8						11015
HPV45	E2	SLKCLRYR	302	8						11016
HPV45	E2	SLKCLRYRLR	302	10						11017
HPV45	E2	SLKCLRYRLRK	302	11						11018
HPV45	E2	SSTSNNKR	275	8						11019
HPV45	E2	SSTSNNKRR	275	9						11020
HPV45	E2	SSTSNNKRRK	275	10						11021
HPV45	E2	SSTWHWTGCNK	321	11						11022
HPV45	E2	SSTSNNKRR	276	8						11023
HPV45	E2	SSTSNNKRRK	276	9						11024
HPV45	E2	STWHWTGCNK	322	10						11025
HPV45	E2	TAREHGITK	51	9						11026
HPV45	E2	TASVGTPK	233	8						11027
HPV45	E2	TSNNKRRK	277	8						11028
HPV45	E2	TTPIHLK	290	8						11029
HPV45	E2	TTPIHLKGDK	290	11						11030
HPV45	E2	TTYVYQFK	172	8						11031
HPV45	E2	TVHVYFDGNK	122	10						11032
HPV45	E2	TVSATQIVR	213	9						11033
HPV45	E2	TVTYNSEVQR	337	10						11034
HPV45	E2	VSATQIVR	214	8						11035
HPV45	E2	VSYWGVYIK	159	10						11036
HPV45	E2	VTYNSEVQR	338	9						11037
HPV45	E2	VVPPINISK	64	9						11038
HPV45	E2	VVPPINISKS	64	11						11039
HPV45	E2	YITETGIWDK	145	10						11040
HPV45	E2	YVQFKSECEK	175	10						11041
HPV45	E6	CIAYAACHK	59	9						11042
HPV45	E6	CIDFYSRIR	68	9	0.0001	0.0001				11043
HPV45	E6	CVYCKATLER	32	10						11044
HPV45	E6	DVSIACVYCK	27	10						11045
HPV45	E6	ELYNLLIR	97	8						11046
HPV45	E6	ELYNLLIRCLR	97	11						11047
HPV45	E6	EVYQFAFK	43	8						11048
HPV45	E6	FAFKDLFIVYR	47	11						11049
HPV45	E6	HSIAGQYR	128	8						11050
HPV45	E6	IAYAACHK	60	8						11051
HPV45	E6	LIRCLRQCK	102	9	0.0190	0.0012				11052
HPV45	E6	LLIRCLRQCK	101	10	0.0470	0.1200				11053
HPV45	E6	MARFDDPTQR	1	10						11054
HPV45	E6	NLLIRCLR	100	8						11055
HPV45	E6	NLLIRCLRQCK	100	11						11056
HPV45	E6	NSVYGETLEK	83	10						11057
HPV45	E6	NTCCDQAR	139	8						11058

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	E6	NTCCDQARQER	139	11						11059
HPV45	E6	NTELYNLLIR	95	10						11060
HPV45	E6	PAEKRRHLK	114	9						11061
HPV45	E6	PAEKRRHLKDK	114	11						11062
HPV45	E6	PLNPAEK	111	8						11063
HPV45	E6	PLNPAEKRR	111	9						11064
HPV45	E6	QARQERLR	144	8						11065
HPV45	E6	QARQERLRR	144	9						11066
HPV45	E6	QARQERLRRR	144	10						11067
HPV45	E6	QARQERLRRRR	144	11						11068
HPV45	E6	RTEVYQFAFK	41	10						11069
HPV45	E6	SIACVYCK	29	8						11070
HPV45	E6	SVYGETLEK	84	9						11071
HPV45	E6	VSIACVYCK	28	9						11072
HPV45	E6	YSRIREL	72	8						11073
HPV45	E7	CVCKCDGR	64	9						11074
HPV45	E7	ESSADDLR	78	8						11075
HPV45	E7	GVSHAQLPAR	44	10						11076
HPV45	E7	GVSHAQLPARR	44	11						11077
HPV45	E7	HAQLPARR	47	8						11078
HPV45	E7	ILCVCKCDGR	62	11						11079
HPV45	E7	KILCVCK	61	8						11080
HPV45	E7	LTVESSADDLR	75	11						11081
HPV45	E7	PARRAEPQR	51	9						11082
HPV45	E7	PARRAEPQRHK	51	11						11083
HPV45	E7	QLPARRAEPQR	49	11						11084
HPV45	E7	RAEPQRHK	54	8						11085
HPV45	E7	TVSSADDLR	76	10						11086
HPV45	E7	VSHAQLPAR	45	9						11087
HPV45	E7	VSHAQLPARR	45	10						11088
HPV45	L1	AASTSTASR	517	9						11089
HPV45	L1	AATAVITQDVR	161	11						11090
HPV45	L1	AIGEHWAK	191	8						11091
HPV45	L1	AMDFSTLQDTK	234	11						11092
HPV45	L1	ASRPKRVR	523	9						11093
HPV45	L1	ASRPKRVRIR	523	11						11094
HPV45	L1	ASTSTASR	518	8						11095
HPV45	L1	ASTSTASRPK	518	11						11096
HPV45	L1	ATAVITQDVR	162	10						11097
HPV45	L1	AVITQDVR	164	8						11098
HPV45	L1	AVPKVSAYQYR	88	11						11099
HPV45	L1	CLRREQLFAR	276	10						11100
HPV45	L1	CVGMEIGR	129	8						11101
HPV45	L1	CVPAIGEHWAK	188	11						11102
HPV45	L1	DICQSICK	250	8						11103
HPV45	L1	DLDQYPLGR	488	9						11104

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A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	L1	DLDQVPLGRK	488	10						11105
HPV45	L1	DSMFFCLR	271	8						11106
HPV45	L1	DSMFFCLRR	271	9						11107
HPV45	L1	DSTYNPETQR	114	11						11108
HPV45	L1	DTVPTDLYIK	296	10						11109
HPV45	L1	DVRDNVSDYK	169	11						11110
HPV45	L1	FARHFWNR	283	8						11111
HPV45	L1	FLQMALWR	24	8						11112
HPV45	L1	FLVQAGLR	498	8						11113
HPV45	L1	FLVQAGLRR	498	9						11114
HPV45	L1	FLVQAGLRRR	498	10						11115
HPV45	L1	FSTLQDTK	237	8						11116
HPV45	L1	FVQSVAVTCQK	450	11						11117
HPV45	L1	FVTVVDTR	359	9						11118
HPV45	L1	GAGNKQAVPK	82	10						11119
HPV45	L1	GLRRRPTIGPR	503	11						11120
HPV45	L1	GLSGHPFYNK	143	10						11121
HPV45	L1	ITTSDSLQFNK	328	11						11122
HPV45	L1	KLKFWTVDLK	473	10						11123
HPV45	L1	KVSAYQYR	91	8						11124
HPV45	L1	KVSAYQYRVFR	91	11						11125
HPV45	L1	LLTVGNPYFR	68	10						11126
HPV45	L1	LSGHPFYNK	144	9						11127
HPV45	L1	LTVGNPYFR	69	9						11128
HPV45	L1	LVQAGLRR	499	8						11129
HPV45	L1	LVQAGLRRR	499	9						11130
HPV45	L1	NTDDYVSR	49	8						11131
HPV45	L1	NTYDPTKFK	383	9						11132
HPV45	L1	PAASTSTASR	516	10						11133
HPV45	L1	PAIGEHWAK	190	9						11134
HPV45	L1	PAKRVRIR	526	8						11135
HPV45	L1	PAKRVRIRSK	526	10						11136
HPV45	L1	PAKRVRIRSKK	526	11						11137
HPV45	L1	PIFLQMALWR	22	10						11138
HPV45	L1	PLDICQSICK	248	10						11139
HPV45	L1	PTIGPRKR	508	8						11140
HPV45	L1	PTKFKHYSR	387	9						11141
HPV45	L1	PTTSLVDTYR	440	10						11142
HPV45	L1	PVPNTYDPTK	380	10						11143
HPV45	L1	QLFARHFWNR	281	10						11144
HPV45	L1	QLFNKPYWLHK	334	11						11145
HPV45	L1	QLFVTVVDTR	357	11						11146
HPV45	L1	QSVAVTCQK	452	9						11147
HPV45	L1	RLTVGNPYFR	67	11						11148
HPV45	L1	RVALDPNK	101	9						11149
HPV45	L1	RVIRSKK	529	8						11150

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	L1	RVVNTDDYVSR	46	11						11151
HPV45	L1	RVVPSGAGNK	77	10						11152
HPV45	L1	SAYQYRVFR	93	9						11153
HPV45	L1	SIFYHAGSSR	58	10						11154
HPV45	L1	SMFFCLRR	272	8						11155
HPV45	L1	SSDLDDYPLGR	486	11						11156
HPV45	L1	STASRPAAK	521	8						11157
HPV45	L1	STASRPAAK	521	9						11158
HPV45	L1	STASRPAAKRV	521	11						11159
HPV45	L1	STIYNPETQR	115	10						11160
HPV45	L1	STSTASRPAAK	519	10						11161
HPV45	L1	STSTASRPAAK	519	11						11162
HPV45	L1	SVAVTCQK	453	8						11163
HPV45	L1	TASRPAAK	522	8						11164
HPV45	L1	TASRPAAKRV	522	10						11165
HPV45	L1	TAVITQDVR	163	9						11166
HPV45	L1	TIYNPETQR	116	9						11167
HPV45	L1	TSDSQLFNK	330	9						11168
HPV45	L1	TSIFYHAGSSR	57	11						11169
HPV45	L1	TSLVDITYR	442	8						11170
HPV45	L1	TSTASRPAAK	520	9						11171
HPV45	L1	TSTASRPAAK	520	10						11172
HPV45	L1	TTSDSQLFNK	329	10						11173
HPV45	L1	TTSLVDITYR	441	9						11174
HPV45	L1	TVGNPYFR	70	8						11175
HPV45	L1	TVPTDLYIK	297	9						11176
HPV45	L1	TVYLPSPSVAR	36	11						11177
HPV45	L1	VALDPNK	102	8						11178
HPV45	L1	VSAYQYRVFR	92	10						11179
HPV45	L1	VTVDITR	360	8						11180
HPV45	L1	VVNTDDYVSR	47	10						11181
HPV45	L1	VVPSGAGNK	78	9						11182
HPV45	L1	WACVGMGIR	127	10						11183
HPV45	L1	WAKGTLC	196	8						11184
HPV45	L1	WTVDLKEK	477	8						11185
HPV45	L1	YIKGTSANMR	303	10						11186
HPV45	L1	YLPSPSVAR	38	9						11187
HPV45	L2	ALSSRRGTVR	286	10						11188
HPV45	L2	ASATDLYR	12	8						11189
HPV45	L2	ASATDLYRTCK	12	11						11190
HPV45	L2	ASTTPSTHK	357	10						11191
HPV45	L2	ATDLYRTCK	14	9						11192
HPV45	L2	ATMFTRSKG	303	9						11193
HPV45	L2	DSDFMIDIR	273	9						11194
HPV45	L2	FMDIRLHR	276	9						11195
HPV45	L2	FTRSGKQIGGR	306	11						11196

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	L2	GIGTSGSGGR	58	11						11197
HPV45	L2	GTCPPDVINK	25	10						11198
HPV45	L2	GTGSGGGR	60	9						11199
HPV45	L2	GTVRFSLGQR	292	11						11200
HPV45	L2	ISSTPLPTVR	210	10						11201
HPV45	L2	ISSTPLPTVRR	210	11						11202
HPV45	L2	KVEGTTLADK	34	10						11203
HPV45	L2	LSRRGTVR	287	9						11204
HPV45	L2	MVSHRAAR	1	8						11205
HPV45	L2	MVSHRAARR	1	9						11206
HPV45	L2	MVSHRAARRK	1	10						11207
HPV45	L2	MVSHRAARRKKR	1	11						11208
HPV45	L2	NTVDVGPTR	79	10						11209
HPV45	L2	PALSSRRGTVR	285	11						11210
HPV45	L2	PASTPSTTHK	356	11						11211
HPV45	L2	PISSTPLPTVR	209	11						11212
HPV45	L2	PLPTVRRVR	214	9						11213
HPV45	L2	PTVRRVRGPR	216	10						11214
HPV45	L2	RASATDLYR	11	9						11215
HPV45	L2	RATMFTRSK	302	10						11216
HPV45	L2	RLGQRATMFTR	298	11						11217
HPV45	L2	RLHRPALSSR	281	10						11218
HPV45	L2	RLHRPALSSRR	281	11						11219
HPV45	L2	RLYSRANQQVR	225	11						11220
HPV45	L2	RSGKQIGGR	308	9						11221
HPV45	L2	RTGYVPLGGR	68	10						11222
HPV45	L2	RVRGPRLYSR	220	10						11223
HPV45	L2	SATDLYRTCK	13	10						11224
HPV45	L2	SSRRGTVR	288	8						11225
HPV45	L2	SSRRGTVRFSR	288	11						11226
HPV45	L2	SSTPLPTVR	211	9						11227
HPV45	L2	SSTPLPTVRR	211	10						11228
HPV45	L2	STHKSTYTPK	362	11						11229
HPV45	L2	STPLPTVR	212	8						11230
HPV45	L2	STPLPTVRR	212	9						11231
HPV45	L2	STPLPTVRRVR	212	11						11232
HPV45	L2	STTPSTTHK	358	9						11233
HPV45	L2	THKSFTYTPK	363	10						11234
HPV45	L2	TMFTRSK	304	8						11235
HPV45	L2	TTPSTTHK	359	8						11236
HPV45	L2	TVRFSRLGQR	293	10						11237
HPV45	L2	TVRRVRGPR	217	9						11238
HPV45	L2	TVVDVGPTR	80	9						11239
HPV45	L2	VSHRAARR	2	8						11240
HPV45	L2	VSHRAARRK	2	9						11241
HPV45	L2	VSHRAARRKKR	2	10						11242

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV45	L2	VVDVGPR	81	8						11243
HPV45	L2	YLPWPYYFPR	437	11						11244
HPV45	L2	YSRANQQVR	227	9						11245
HPV56	E2	AAVSHRPGK	177	9						11246
HPV56	E2	AAVSHRPGKR	177	10						11247
HPV56	E2	AVSHRPGK	178	8						11248
HPV56	E2	AVSHRPGKR	178	9						11249
HPV56	E2	AVSHRPGKRPR	178	11						11250
HPV56	E2	CLQVCKAK	4	8						11251
HPV56	E2	CMQYVAWK	71	8						11252
HPV56	E2	DAAVSHRPGK	176	10						11253
HPV56	E2	DAAVSHRPGKR	176	11						11254
HPV56	E2	DSSRESHAK	195	9						11255
HPV56	E2	DSVSSTCR	140	8						11256
HPV56	E2	DTDNTDSR	213	8						11257
HPV56	E2	DTDNTDSRSR	213	10						11258
HPV56	E2	EAKKFGCK	117	8						11259
HPV56	E2	ELWLTEPK	43	8						11260
HPV56	E2	ELWLTEPKK	43	9						11261
HPV56	E2	ESEFSSR	191	8						11262
HPV56	E2	ETVNEYNTHK	154	10						11263
HPV56	E2	EVWFDGSK	61	8						11264
HPV56	E2	GIYYVHDGHK	99	10						11265
HPV56	E2	HIEVWFDGSK	59	10						11266
HPV56	E2	HISDTNTDSR	210	11						11267
HPV56	E2	HLKGEPNR	239	8						11268
HPV56	E2	HLKGEPNRLK	239	10						11269
HPV56	E2	HVKIPVVYR	297	9						11270
HPV56	E2	IYKDETQR	283	9						11271
HPV56	E2	ISDTNTDSR	211	10						11272
HPV56	E2	ITHYKDETQR	281	11						11273
HPV56	E2	KTPVTVHLK	233	9						11274
HPV56	E2	KVCSGVGYR	90	9						11275
HPV56	E2	LSHVKIPVVYR	295	11						11276
HPV56	E2	LTEPKCKFK	46	9						11277
HPV56	E2	LTEPKCKFKK	46	10						11278
HPV56	E2	MVPCLVQVCK	1	9						11279
HPV56	E2	MVPCLVQVCKAK	1	11						11280
HPV56	E2	NSFLSHVK	292	8						11281
HPV56	E2	PVHLKGEPNR	236	11						11282
HPV56	E2	PVYRLVWVK	301	10						11283
HPV56	E2	RLKCCRYR	246	8						11284
HPV56	E2	RLKCCRYRFQK	246	11						11285
HPV56	E2	RLRESEFSSR	188	11						11286
HPV56	E2	SIITIYK	279	8						11287
HPV56	E2	SINNNHHPGDK	223	11						11288

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV56	E2	SSRESHAK	196	8						11289
HPV56	E2	STYHWTSTDNK	266	11						11290
HPV56	E2	TIYKDETQR	282	10						11291
HPV56	E2	TIYNNEEWTLR	28	11						11292
HPV56	E2	TPVAVHLK	234	8						11293
HPV56	E2	TVNEYNTHK	155	9						11294
HPV56	E2	VSHRPGKR	179	8						11295
HPV56	E2	VSHRPGKRPR	179	10						11296
HPV56	E2	VVHLKGEPNR	237	10						11297
HPV56	E2	VVRLVWDK	302	9						11298
HPV56	E2	WLTEPKKCFK	45	10						11299
HPV56	E2	WLTEPKKCFKK	45	11						11300
HPV56	E2	YSIITIYK	278	9						11301
HPV56	E2	YTDFEQAK	111	9						11302
HPV56	E2	YTDFEQAKK	111	10						11303
HPV56	E6	ATLESITK	89	8						11304
HPV56	E6	ATLESITKK	89	9						11305
HPV56	E6	CLGCWROTSR	139	10						11306
HPV56	E6	CLLFYSKVR	69	9						11307
HPV56	E6	CLLFYSKVRK	69	10						11308
HPV56	E6	CTELKLVYR	50	9						11309
HPV56	E6	CVYCKKELTR	33	10						11310
HPV56	E6	DLLRCYR	101	8						11311
HPV56	E6	DRLSCVYCK	28	10						11312
HPV56	E6	DRLSCVYCKK	28	11						11313
HPV56	E6	EIPLDLR	23	8						11314
HPV56	E6	EVLEIPLDLR	20	11						11315
HPV56	E6	EVYNFACTELK	44	11						11316
HPV56	E6	FACTELKLVYR	48	11						11317
HPV56	E6	GATLESITK	88	9						11318
HPV56	E6	GATLESITKK	88	10						11319
HPV56	E6	GSCLGWR	137	8						11320
HPV56	E6	LLFYSKVR	70	8						11321
HPV56	E6	LLFYSKVRK	70	9						11322
HPV56	E6	LLFYSKVRKYR	70	11						11323
HPV56	E6	LSCVYCKK	31	8						11324
HPV56	E6	QLCDLLIR	98	8						11325
HPV56	E6	QLCDLLIRCYR	98	11						11326
HPV56	E6	QLHCDRKR	119	8						11327
HPV56	E6	QLHCDRKR	119	9						11328
HPV56	E6	QSPLTPEEK	110	9						11329
HPV56	E6	RLSCVYCK	30	8						11330
HPV56	E6	RLSCVYCKK	30	9						11331
HPV56	E6	RVCLLFYSK	67	9						11332
HPV56	E6	RVCLLFYSKVR	67	11						11333
HPV56	E6	TLESITKK	90	8						11334

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV56	E6	VLEIPLDLR	21	10						11335
HPV56	E6	WTGSLGCLR	135	10						11336
HPV56	E6	YSKVRKYR	73	8						11337
HPV56	E7	DIQSTKEDLR	75	10						11338
HPV56	E7	EVDHLQER	39	8						11339
HPV56	E7	FVVQLDIQSTK	70	11						11340
HPV56	E7	HLQERPOQAR	42	10						11341
HPV56	E7	HVPCCECK	62	8						11342
HPV56	E7	LHVPCCECK	60	10						11343
HPV56	E7	QLDIQSTK	73	8						11344
HPV56	E7	QSTKEDLR	77	8						11345
HPV56	E7	VVQLDIQSTK	71	10						11346
HPV56	E7	YLIHVPCCECK	59	11						11347
HPV56	L1	AMDFKVLQESK	241	11						11348
HPV56	L1	AMGEHWTK	198	8						11349
HPV56	L1	ATDSYVVR	58	8						11350
HPV56	L1	ATEQLSKYDAR	381	11						11351
HPV56	L1	ATSLDKYR	444	9						11352
HPV56	L1	ATWRPSENK	37	9						11353
HPV56	L1	AVATSKKR	512	8						11354
HPV56	L1	AVGHPYYSVTK	79	11						11355
HPV56	L1	CTPAMGEHWTK	195	11						11356
HPV56	L1	CVGLEVGR	136	8						11357
HPV56	L1	DARKINQYLR	389	10						11358
HPV56	L1	DIVQSTCK	257	8						11359
HPV56	L1	DLDDQFLGR	491	9						11360
HPV56	L1	DLDDQFLGRK	491	10						11361
HPV56	L1	DSMWFYLR	278	8						11362
HPV56	L1	DSMWFYLR	278	9						11363
HPV56	L1	DSRDNISVDGK	176	11						11364
HPV56	L1	DTFGAMDFFK	236	10						11365
HPV56	L1	DTNIYNPDQER	121	11						11366
HPV56	L1	ELQFVFQLCK	404	10						11367
HPV56	L1	ELYLKGNGR	308	10						11368
HPV56	L1	ETIPAELYLK	303	10						11369
HPV56	L1	FARHYFNR	290	8						11370
HPV56	L1	FARHYFNRAKG	290	11						11371
HPV56	L1	FLMQLGTR	501	8						11372
HPV56	L1	FLMQLGTRSK	501	10						11373
HPV56	L1	FLQMATWR	33	8						11374
HPV56	L1	FVTVDITR	364	9						11375
HPV56	L1	GLSGHPLFNR	150	10						11376
HPV56	L1	ISTATEQLSK	378	10						11377
HPV56	L1	ITSEAQLFNK	334	10						11378
HPV56	L1	KVSAYQYR	98	8						11379
HPV56	L1	KVSAYQYRVR	98	11						11380

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV56	L1	KVVATDSYVK	55	10						11381
HPV56	L1	KVVATDSYVKR	55	11						11382
HPV56	L1	KVYLPPTPSK	45	11						11383
HPV56	L1	LANNLVIEDSR	168	11						11384
HPV56	L1	LMQLGTRSK	502	9						11385
HPV56	L1	LSGHPLEFR	151	9						11386
HPV56	L1	LSKYDARK	385	8						11387
HPV56	L1	MATWRPSENK	36	10						11388
HPV56	L1	MITSEALFNK	333	11						11389
HPV56	L1	MLPMMYIYR	2	9						11390
HPV56	L1	MMLPMMYIYR	1	10						11391
HPV56	L1	NIPKVSAYQYR	95	11						11392
HPV56	L1	NIYNPDQER	123	9						11393
HPV56	L1	NTKTNIPK	91	8						11394
HPV56	L1	PAMGEHWTK	197	9						11395
HPV56	L1	PAVATSKK	511	8						11396
HPV56	L1	PAVATSKKR	511	9						11397
HPV56	L1	PFLQMATWR	31	10						11398
HPV56	L1	PLDIVQSTCK	255	10						11399
HPV56	L1	PTEKQDPLAK	467	10						11400
HPV56	L1	PTSTSTPAK	522	9						11401
HPV56	L1	PTSTSTPAKR	522	10						11402
HPV56	L1	PTSTSTPAKRK	522	11						11403
HPV56	L1	PVATSLDK	442	9						11404
HPV56	L1	PVATSLDKYR	442	11						11405
HPV56	L1	QLFARHYFNR	288	10						11406
HPV56	L1	QLFNKPYWLQR	339	11						11407
HPV56	L1	QLFVTIVVDITR	362	11						11408
HPV56	L1	QLSKYDAR	384	8						11409
HPV56	L1	QLSKYDARK	384	9						11410
HPV56	L1	QMATWRPSENK	35	11						11411
HPV56	L1	QSTCKYPDYLK	260	11						11412
HPV56	L1	RSKPAVATSK	508	10						11413
HPV56	L1	RSKPAVATSKK	508	11						11414
HPV56	L1	RSTATCQR	455	9						11415
HPV56	L1	RVRLDPDNK	108	9						11416
HPV56	L1	SAPTSTSTPAK	520	11						11417
HPV56	L1	SAYQYRVFR	100	9						11418
HPV56	L1	SAYQYRVFRVR	100	11						11419
HPV56	L1	SIFVHAGSSR	67	10						11420
HPV56	L1	SLEDKYRYVR	446	10						11421
HPV56	L1	SMWFYLR	279	8						11422
HPV56	L1	STATCQR	456	8						11423
HPV56	L1	STATEQLSK	379	9						11424
HPV56	L1	STCKYPDYLK	261	10						11425
HPV56	L1	STDLDQFPLGR	489	11						11426

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV56	L1	STPAKRKR	526	8						11427
HPV56	L1	STPAKRKR	526	9						11428
HPV56	L1	STSTPAKR	524	8						11429
HPV56	L1	STSTPAKRK	524	9						11430
HPV56	L1	STSTPAKRKR	524	10						11431
HPV56	L1	STSTPAKRKR	524	11						11432
HPV56	L1	SVTKDNTK	86	8						11433
HPV56	L1	TATEQLSK	380	8						11434
HPV56	L1	TIPAEYLK	304	9						11435
HPV56	L1	TISTATEQLSK	377	11						11436
HPV56	L1	TSEAQLFNK	335	9						11437
HPV56	L1	TSIFYHAGSSR	66	11						11438
HPV56	L1	TSLEDKYR	445	8						11439
HPV56	L1	TSLEDKYRYVR	445	11						11440
HPV56	L1	TSTPAKRK	525	8						11441
HPV56	L1	TSTPAKRKR	525	9						11442
HPV56	L1	TSTPAKRKR	525	10						11443
HPV56	L1	TSTSTPAK	523	8						11444
HPV56	L1	TSTSTPAKR	523	9						11445
HPV56	L1	TSTSTPAKRK	523	10						11446
HPV56	L1	TSTSTPAKRKR	523	11						11447
HPV56	L1	VATDSYVK	57	8						11448
HPV56	L1	VATDSYVKR	57	9						11449
HPV56	L1	VATSLDK	443	8						11450
HPV56	L1	VATSLDKYR	443	10						11451
HPV56	L1	VSAYQYRVFR	99	10						11452
HPV56	L1	VTVDITR	365	8						11453
HPV56	L1	VVATDSYVK	56	9						11454
HPV56	L1	VVATDSYVKR	56	10						11455
HPV56	L1	WACVGLEVGR	134	10						11456
HPV56	L1	WTKGAVCK	203	8						11457
HPV56	L1	YLGSGNGR	310	8						11458
HPV56	L1	YLPTPVSK	47	9						11459
HPV56	L1	YLRREQLFAR	283	10						11460
HPV56	L1	YSVTKDNTK	85	9						11461
HPV56	L1	YVRSTAITCQR	453	11						11462
HPV56	L2	AAPRLYRK	222	8						11463
HPV56	L2	ALHRPAFTTR	281	10						11464
HPV56	L2	ALHRPAFTTR	281	11						11465
HPV56	L2	ALWPVYFER	438	9						11466
HPV56	L2	ALWPVYFFRR	438	10						11467
HPV56	L2	ALWPVYFFRRR	438	11						11468
HPV56	L2	ASATQLYK	12	8						11469
HPV56	L2	ASATQLYKTK	12	11						11470
HPV56	L2	ATPSAHLPIK	367	10						11471
HPV56	L2	ATQLYKTK	14	9						11472

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV56	L2	DVVKIEQK	30	9						11473
HPV56	L2	FALWPVYFFR	437	10						11474
HPV56	L2	FALWPVYFFRR	437	11						11475
HPV56	L2	FMNIVALHR	276	9						11476
HPV56	L2	FTTRRGVVR	287	9						11477
HPV56	L2	GIGTGTGGGR	58	11						11478
HPV56	L2	GTCPEDVVK	25	10						11479
HPV56	L2	GTGTGGGR	60	9						11480
HPV56	L2	GVRFSRLGR	293	9						11481
HPV56	L2	GVRFSRLGRK	293	10						11482
HPV56	L2	IAAPRLYR	221	8						11483
HPV56	L2	IAAPRLYRK	221	9						11484
HPV56	L2	ISSTPIPGFR	210	10						11485
HPV56	L2	ISSTPIPGFRR	210	11						11486
HPV56	L2	IVDVTAR	81	8						11487
HPV56	L2	KATIQTR	302	8						11488
HPV56	L2	KIEQKTWADK	34	10						11489
HPV56	L2	KVTDPAFLDR	235	10						11490
HPV56	L2	MVAHRATR	1	8						11491
HPV56	L2	MVAHRATR	1	9						11492
HPV56	L2	MVAHRATRRK	1	10						11493
HPV56	L2	MVAHRATRRKR	1	11						11494
HPV56	L2	PAFTTRGGVVR	285	11						11495
HPV56	L2	PISSTPIPGFR	209	11						11496
HPV56	L2	PSAHLPIK	369	8						11497
HPV56	L2	PSTIVDVTAR	78	11						11498
HPV56	L2	PVYFFRRR	441	8						11499
HPV56	L2	PVYFFRRRR	441	9						11500
HPV56	L2	PVYFFRRRRR	441	10						11501
HPV56	L2	PVYFFRRRRRK	441	11						11502
HPV56	L2	QTRRGTTQIGAR	306	11						11503
HPV56	L2	RAGVVPGLSR	68	10						11504
HPV56	L2	RASATQLYK	11	9						11505
HPV56	L2	RIAAPRLYR	220	9						11506
HPV56	L2	RIAAPRLYRK	220	10						11507
HPV56	L2	RLGRKATIQTR	298	11						11508
HPV56	L2	RLYRKAFQQVK	225	11						11509
HPV56	L2	SATQLYKTK	13	10						11510
HPV56	L2	SSTPIGFR	211	9						11511
HPV56	L2	SSTPIGFR	211	10						11512
HPV56	L2	STIVDVTAR	79	10						11513
HPV56	L2	STPIGFR	212	8						11514
HPV56	L2	STPIGFR	212	9						11515
HPV56	L2	TIVDVTAR	80	9						11516
HPV56	L2	TTRRGVVR	288	8						11517
HPV56	L2	TTRRGVVRFSR	288	11						11518

HPV56 L2
HPV56 L2
HPV56 L2
HPV56 L2
HPV56 L2
HPV56 L2
HPV56 L2
HPV56 L2

Table IX
A03 Supermotif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	A*1101	A*3101	A*3301	A*6801	Seq. Id. No.
HPV56	L2	VAHRATRR	2	8						11519
HPV56	L2	VAHRATRRK	2	9						11520
HPV56	L2	VAHRATRRKR	2	10						11521
HPV56	L2	VALHRPAFTTR	280	11						11522
HPV56	L2	VATPSAHLPIK	366	11						11523
HPV56	L2	VTDPFAFLDR	236	9						11524
HPV56	L2	VVNKIEQK	31	8						11525

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	240	8	AFGLTPSI		11526
HPV16	E1	391	11	AFLKNSQAKI		11527
HPV16	E1	539	9	ALDGNLYSM		11528
HPV16	E1	459	9	ALKRFLOGI		11529
HPV16	E1	318	9	ALYWYKTGI		11530
HPV16	E1	206	9	AMLAKFKEL		11531
HPV16	E1	206	10	AMLAKFKELY		11532
HPV16	E1	524	8	ATVPCWNY		11533
HPV16	E1	524	9	ATVPCWNYI		11534
HPV16	E1	82	9	AVQVLKRKY		11535
HPV16	E1	82	10	AVQVLKRKYL		11536
HPV16	E1	23	11	AVVEKKTGDAI		11537
HPV16	E1	500	9	CFVNSKSHF		11538
HPV16	E1	500	10	CFVNSKSHFW		11539
HPV16	E1	500	11	CFVNSKSHFWL		11540
HPV16	E1	237	11	CIAAFGLTPSI		11541
HPV16	E1	259	9	CLYLIHQSL		11542
HPV16	E1	304	9	CMMEPPKL		11543
HPV16	E1	353	8	CTFELSQM		11544
HPV16	E1	353	11	CTFELSQMVFQW		11545
HPV16	E1	101	10	CVDNNISPRL		11546
HPV16	E1	640	10	CVSGQNTNTL		11547
HPV16	E1	299	8	CVSPMCM		11548
HPV16	E1	299	9	CVSPMCMMI		11549
HPV16	E1	528	9	CWNYIDN		11550
HPV16	E1	50	9	DFIVNDNDY		11551
HPV16	E1	50	10	DFIVNDNDYL		11552
HPV16	E1	97	10	DISGCVDN		11553
HPV16	E1	368	8	DIVDDSEI		11554
HPV16	E1	368	10	DIVDDSEIAY		11555
HPV16	E1	43	9	DTGEDLVDF		11556
HPV16	E1	43	10	DTGEDLVDFI		11557
HPV16	E1	384	9	DTNSNASAF		11558
HPV16	E1	384	10	DTNSNASAFI		11559
HPV16	E1	548	10	DVKHRLVQL		11560
HPV16	E1	235	9	DWCIAAFGL		11561
HPV16	E1	438	8	DWKQIVMF		11562
HPV16	E1	438	9	DWKQIVMFL		11563
HPV16	E1	438	11	DWKQIVMFLRY		11564
HPV16	E1	452	9	EFMSFLTAL		11565
HPV16	E1	374	9	EIAYKYAQL		11566
HPV16	E1	603	10	ELNDKNWKS		11567
HPV16	E1	603	11	ELNDKNWKSFF		11568
HPV16	E1	356	8	ELSOMVQW		11569
HPV16	E1	356	10	ELSOMVQWAY		11570
HPV16	E1	213	10	ELYGVSFSEL		11571

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	63	8	ETETAHAL		11572
HPV16	E1	63	9	ETETAHALF		11573
HPV16	E1	152	9	ETETPCSY		11574
HPV16	E1	288	10	ETIEKLKSL		11575
HPV16	E1	288	11	ETIEKLKSL		11576
HPV16	E1	138	8	EVETQML		11577
HPV16	E1	331	9	EVYGDTPW		11578
HPV16	E1	331	10	EVYGDTPWI		11579
HPV16	E1	338	9	EVIQRQTVL		11580
HPV16	E1	612	9	FFSRTWSRL		11581
HPV16	E1	612	11	FFSRTWSRLSL		11582
HPV16	E1	51	8	FIVNDNDY		11583
HPV16	E1	51	9	FIVNDNDYL		11584
HPV16	E1	392	10	FLKSNSQAKI		11585
HPV16	E1	463	11	FLQGPKKNCI		11586
HPV16	E1	493	9	FLQGSVIGF		11587
HPV16	E1	445	9	FLRYQGVF		11588
HPV16	E1	445	10	FLRYQGVFEM		11589
HPV16	E1	456	8	FLTALKRF		11590
HPV16	E1	456	9	FLTALKRFL		11591
HPV16	E1	453	8	FMSFLTAL		11592
HPV16	E1	453	11	FMSFLTALKRF		11593
HPV16	E1	586	9	FTFPNEFPF		11594
HPV16	E1	501	8	FVNSKSHF		11595
HPV16	E1	501	9	FVNSKSHFW		11596
HPV16	E1	501	10	FVNSKSHFWL		11597
HPV16	E1	508	11	FWLQPLADAKI		11598
HPV16	E1	466	8	GIPKKNCI		11599
HPV16	E1	466	9	GIPKKNCIL		11600
HPV16	E1	466	10	GIPKKNCILL		11601
HPV16	E1	466	11	GIPKKNCILLY		11602
HPV16	E1	325	9	GISNISEVY		11603
HPV16	E1	242	10	GLTFSIADSI		11604
HPV16	E1	519	11	GMLDDATVPCW		11605
HPV16	E1	487	8	GMSLMKFL		11606
HPV16	E1	272	10	GMVVLVLLVRY		11607
HPV16	E1	571	8	GTDSRWPY		11608
HPV16	E1	571	9	GTDSRWPYL		11609
HPV16	E1	12	8	GTGCNGWF		11610
HPV16	E1	12	9	GTGCNGWFY		11611
HPV16	E1	450	8	GVEFMSFL		11612
HPV16	E1	450	11	GVEFMSFLTAL		11613
HPV16	E1	179	8	GVSERHTI		11614
HPV16	E1	216	11	GVSFSELVRPF		11615
HPV16	E1	263	9	HIQSLACSW		11616
HPV16	E1	263	11	HIQSLACSWG		11617

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	184	8	HTICQTPL		11618
HPV16	E1	184	11	HTICQTPLNI		11619
HPV16	E1	411	10	HYKRAEKKQM		11620
HPV16	E1	369	9	IVDDSEIAY		11621
HPV16	E1	369	11	IVDDSEIAYKY		11622
HPV16	E1	401	8	IVKDCATM		11623
HPV16	E1	52	8	IVNDNDYL		11624
HPV16	E1	210	10	KFKELYGVSF		11625
HPV16	E1	492	8	KFLQGSVI		11626
HPV16	E1	492	10	KFLQGSVICF		11627
HPV16	E1	400	9	KIVKDCATM		11628
HPV16	E1	296	8	KLLCVSPM		11629
HPV16	E1	296	10	KLLCVSPMCM		11630
HPV16	E1	296	11	KLLCVSPMCM		11631
HPV16	E1	311	9	KLRSTAAAL		11632
HPV16	E1	311	10	KLRSTAAALY		11633
HPV16	E1	311	11	KLRSTAAALYW		11634
HPV16	E1	323	11	KTGISNISEVY		11635
HPV16	E1	252	9	KTLLQYCYL		11636
HPV16	E1	252	10	KTLLQYCYLY		11637
HPV16	E1	252	11	KTLLQYCYLYL		11638
HPV16	E1	199	9	KTSNAKAAM		11639
HPV16	E1	199	10	KTSNAKAAML		11640
HPV16	E1	89	10	KYLVSPLSDI		11641
HPV16	E1	126	9	LFESEDSGY		11642
HPV16	E1	485	9	LFGMSLMKF		11643
HPV16	E1	485	10	LFGMSLMKFL		11644
HPV16	E1	297	9	LLCVSPMCM		11645
HPV16	E1	297	10	LLCVSPMCM		11646
HPV16	E1	297	11	LLCVSPMCM		11647
HPV16	E1	254	8	LLQYCYL		11648
HPV16	E1	254	9	LLQYCYLYL		11649
HPV16	E1	254	11	LLQYCYLYLHI		11650
HPV16	E1	293	11	LSKLLCVSPM		11651
HPV16	E1	490	10	LMKFLQGSVI		11652
HPV16	E1	457	8	LTALKRFL		11653
HPV16	E1	457	11	LTALKRFLQGI		11654
HPV16	E1	191	8	LTNILNVL		11655
HPV16	E1	243	9	LTPSIADSI		11656
HPV16	E1	48	11	LVDFIVNDNDY		11657
HPV16	E1	554	9	LVOLKCPPL		11658
HPV16	E1	554	10	LVOLKCPPL		11659
HPV16	E1	554	11	LVOLKCPPLI		11660
HPV16	E1	544	11	LVSMDEVKHRPL		11661
HPV16	E1	91	8	LVSPLSDI		11662
HPV16	E1	583	10	LVVFTFPNEF		11663

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	475	11	LYGAANTGKSL		11664
HPV16	E1	214	9	LYGVFSSEL		11665
HPV16	E1	260	8	LYLHIQSL		11666
HPV16	E1	319	8	LYWYKTGI		11667
HPV16	E1	319	11	LYWYKTGISNI		11668
HPV16	E1	444	10	MFLRYQGVEF		11669
HPV16	E1	444	11	MFLRYQGVFEM		11670
HPV16	E1	207	8	MLAKFKEL		11671
HPV16	E1	207	9	MLAKFKELY		11672
HPV16	E1	520	10	MLDDATVPCW		11673
HPV16	E1	305	8	MMIEPPKL		11674
HPV16	E1	360	10	MVQWAYDNDI		11675
HPV16	E1	273	9	MVLLLVRY		11676
HPV16	E1	567	10	NINAGTDSRW		11677
HPV16	E1	105	9	NISPRLKAI		11678
HPV16	E1	105	11	NISPRLKAICI		11679
HPV16	E1	535	10	NLRNALDGNL		11680
HPV16	E1	136	9	NTEVETQQM		11681
HPV16	E1	136	10	NTEVETQQML		11682
HPV16	E1	480	9	NTGKSLFGM		11683
HPV16	E1	608	11	NTGKSLFGMSL		11684
HPV16	E1	530	10	NWKSFSRTW		11685
HPV16	E1	593	11	NYIDDLNRNAL		11686
HPV16	E1	512	10	PFDEGNPVY		11687
HPV16	E1	512	9	PLADAKIGM		11688
HPV16	E1	561	10	PLADAKIGML		11689
HPV16	E1	190	8	PLITTSNI		11690
HPV16	E1	553	9	PLTNILNLV		11691
HPV16	E1	553	10	PLVQLKCPPL		11692
HPV16	E1	553	11	PLVQLKCPPLL		11693
HPV16	E1	302	11	PMCMMIEPPKL		11694
HPV16	E1	600	10	PVYELNDKNW		11695
HPV16	E1	577	10	PYLIINRLVVF		11696
HPV16	E1	441	8	QIVMFLRY		11697
HPV16	E1	556	8	QLKCPPLL		11698
HPV16	E1	556	9	QLKCPPLLI		11699
HPV16	E1	419	8	QMSMSQWI		11700
HPV16	E1	419	10	QMSMSQWIKY		11701
HPV16	E1	359	11	QMSQWAYDNDI		11702
HPV16	E1	188	8	QTPLTNIL		11703
HPV16	E1	188	11	QTPLTNILNLV		11704
HPV16	E1	343	8	QTVLQHSF		11705
HPV16	E1	84	8	QVLKRKYL		11706
HPV16	E1	362	8	QWAYDNDI		11707
HPV16	E1	257	8	QYCLYLHI		11708
HPV16	E1	257	11	QYCLYLHIQSL		11709

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	125	10	RLFESEDSGY		11710
HPV16	E1	582	11	RLVVFTEPNEF		11711
HPV16	E1	615	8	RTWSRLSL		11712
HPV16	E1	432	8	RVDDGGDW		11713
HPV16	E1	432	11	RVDDGGDWKQI		11714
HPV16	E1	575	9	RWPLYHNRL		11715
HPV16	E1	280	11	RYKCGKNRETI		11716
HPV16	E1	447	8	RYQGVFEM		11717
HPV16	E1	447	10	RYQGVFEMSF		11718
HPV16	E1	447	11	RYQGVFEMFSL		11719
HPV16	E1	611	10	SFESRTWSRL		11720
HPV16	E1	455	9	SFLTALKRF		11721
HPV16	E1	455	10	SFLTALKRFL		11722
HPV16	E1	349	9	SFNDCTFEL		11723
HPV16	E1	218	9	SFSELVRPF		11724
HPV16	E1	246	9	SIADSIKTL		11725
HPV16	E1	246	10	SIADSIKTL		11726
HPV16	E1	250	9	SIKTLQQY		11727
HPV16	E1	250	11	SIKTLQQYCL		11728
HPV16	E1	266	8	SLACSWGGM		11729
HPV16	E1	266	11	SLACSWGMMVL		11730
HPV16	E1	484	8	SLFGMSLM		11731
HPV16	E1	484	10	SLFGMSLMKF		11732
HPV16	E1	484	11	SLFGMSLMKFL		11733
HPV16	E1	489	11	SLMKFLQGSVI		11734
HPV16	E1	546	9	SMDVKHRPL		11735
HPV16	E1	421	8	SMSQWIKY		11736
HPV16	E1	314	8	STAAALYW		11737
HPV16	E1	314	9	STAAALYWY		11738
HPV16	E1	231	8	STCCDWCI		11739
HPV16	E1	231	11	STCCDWCIAAF		11740
HPV16	E1	270	8	SWGMMVLL		11741
HPV16	E1	270	9	SWGMMVLLL		11742
HPV16	E1	354	10	TFELSQMVQW		11743
HPV16	E1	587	8	TFPNEPFI		11744
HPV16	E1	185	10	TICQTPLTNI		11745
HPV16	E1	185	11	TICQTPLTNIL		11746
HPV16	E1	289	9	TIEKLLSKL		11747
HPV16	E1	289	10	TIEKLLSKLL		11748
HPV16	E1	253	8	TLLQQYCL		11749
HPV16	E1	253	9	TLLQQYCLY		11750
HPV16	E1	253	10	TLLQQYCLYL		11751
HPV16	E1	525	8	TVPCWNYI		11752
HPV16	E1	585	8	VFTFPNEF		11753
HPV16	E1	585	10	VFTFPNEPFI		11754
HPV16	E1	498	11	VICFVNSKSHF		11755

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	85	11	VLKRKYLVSPL		11756
HPV16	E1	197	11	VLKTSNAKAAM		11757
HPV16	E1	345	11	VLOHSFNDCTF		11758
HPV16	E1	443	11	VMFLRYQGVF		11759
HPV16	E1	24	10	VVEKKTGDAL		11760
HPV16	E1	584	9	VVFTFPNEF		11761
HPV16	E1	584	11	VVFTFPNEPFF		11762
HPV16	E1	274	8	VVLLLVRY		11763
HPV16	E1	601	9	VVELNDKNW		11764
HPV16	E1	332	8	VYGDTPFW		11765
HPV16	E1	332	9	VYGDTPFWI		11766
HPV16	E1	339	8	WQRTVL		11767
HPV16	E1	509	10	WLQPLADAKI		11768
HPV16	E1	321	9	WYKTGISNI		11769
HPV16	E1	531	10	YIDNLRNAL		11770
HPV16	E1	261	11	YLIHQSLACSW		11771
HPV16	E1	578	9	YLNRLVVF		11772
HPV16	E1	578	11	YLIHRLVVFTF		11773
HPV16	E1	90	9	YLVSPISDI		11774
HPV16	E1	320	10	YWYKTGISNI		11775
HPV16	E1	270	10	AFNSSHKGRI		11776
HPV16	E2	72	8	AIQLTL		11777
HPV16	E2	72	11	AIQLTLTETI		11778
HPV16	E2	331	11	AIYTLTYDSEW		11779
HPV16	E2	41	9	AIYKAREM		11780
HPV16	E2	41	11	AIYKAREMGF		11781
HPV16	E2	228	11	ALGTEETQTTI		11782
HPV16	E2	69	9	ALQAIQL		11783
HPV16	E2	69	11	ALQAIQLTL		11784
HPV16	E2	221	9	ATHKAVL		11785
HPV16	E2	63	8	AVSKNKAL		11786
HPV16	E2	63	11	AVSKNKALQAI		11787
HPV16	E2	314	8	AVSSTWHW		11788
HPV16	E2	309	11	CTLYTAVSSTW		11789
HPV16	E2	124	8	DICNTMHY		11790
HPV16	E2	124	11	DICNTMHYTNW		11791
HPV16	E2	25	8	DLRDHIDY		11792
HPV16	E2	25	9	DLRDHIDYW		11793
HPV16	E2	246	11	DTGNPCHITKL		11794
HPV16	E2	96	8	DVSLEVYL		11795
HPV16	E2	31	8	DYWKHMRL		11796
HPV16	E2	74	9	ELQTLTETI		11797
HPV16	E2	74	10	ELQTLTETIY		11798
HPV16	E2	80	8	ETIYNSQY		11799
HPV16	E2	185	9	EVIAGGQVI		11800
HPV16	E2	185	10	EVHAGGQVIL		11801

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E2	118	8	EVQFDGDI		11802
HPV16	E2	204	8	EVSSPEII		11803
HPV16	E2	100	11	EVYLTAPTGCI		11804
HPV16	E2	340	8	EWQRDQFL		11805
HPV16	E2	346	11	FLSQVKIPKTI		11806
HPV16	E2	168	11	FVQFKDDAEKY		11807
HPV16	E2	163	9	GIRTYFVQF		11808
HPV16	E2	156	9	GLYYVHEGI		11809
HPV16	E2	230	9	GTEETQTTI		11810
HPV16	E2	114	8	GYTVEVQF		11811
HPV16	E2	29	8	HIDYWKIIM		11812
HPV16	E2	29	10	HIDYWKIMRL		11813
HPV16	E2	53	10	HINHVVPTL		11814
HPV16	E2	290	9	ILKGDANTL		11815
HPV16	E2	35	8	HMRLECAI		11816
HPV16	E2	35	9	HMRLECAIY		11817
HPV16	E2	35	10	HMRLECAIYY		11818
HPV16	E2	18	9	HYENDSTD		11819
HPV16	E2	130	8	HYTNWTHIY		11820
HPV16	E2	130	9	HYTNWTHI		11821
HPV16	E2	130	10	HYTNWTHIYI		11822
HPV16	E2	193	8	ILCPTSVF		11823
HPV16	E2	356	8	ITVSTGFM		11824
HPV16	E2	356	10	ITVSTGFMSI		11825
HPV16	E2	288	11	IVHLKGDANTL		11826
HPV16	E2	332	10	IVTLTYDSEW		11827
HPV16	E2	82	11	IYNSQYSNEKW		11828
HPV16	E2	42	8	IYKAREM		11829
HPV16	E2	42	10	IYKAREMGF		11830
HPV16	E2	354	9	KTITVSTGF		11831
HPV16	E2	354	10	KTITVSTGFM		11832
HPV16	E2	91	9	KWTLQDVSL		11833
HPV16	E2	177	8	KYSKNKVW		11834
HPV16	E2	103	8	LTAPTGCI		11835
HPV16	E2	16	11	LTIYENDSTD		11836
HPV16	E2	77	11	LTLETIYNSQY		11837
HPV16	E2	311	9	LYTAVSSTW		11838
HPV16	E2	311	11	LYTAVSSTWHW		11839
HPV16	E2	157	8	LYYVHEGI		11840
HPV16	E2	157	11	LYYVHEGIRTY		11841
HPV16	E2	296	8	NTLKCLRY		11842
HPV16	E2	296	10	NTLKCLRYRF		11843
HPV16	E2	127	8	NTMIYTNW		11844
HPV16	E2	127	11	NTMIYTNWTHI		11845
HPV16	E2	284	8	NTPIVHL		11846
HPV16	E2	9	8	NVCQDKIL		11847

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E2	9	11	NVCQDKILTHY		11848
HPV16	E2	325	8	NVKIKSAI		11849
HPV16	E2	325	11	NVKIKSAIVTL		11850
HPV16	E2	106	10	PTGCIKKHGY		11851
HPV16	E2	60	11	PTLAVSKNKAL		11852
HPV16	E2	120	10	QFDGICNTM		11853
HPV16	E2	170	9	QFKDDAEKY		11854
HPV16	E2	345	8	QFLSQVKI		11855
HPV16	E2	76	8	QLLETIIY		11856
HPV16	E2	151	8	QVDYYGLY		11857
HPV16	E2	151	9	QVDYYGLYY		11858
HPV16	E2	191	10	QVILCPTSVF		11859
HPV16	E2	349	8	QVKIPKTI		11860
HPV16	E2	86	9	QYSNEKWTI		11861
HPV16	E2	304	8	RFKKHCTL		11862
HPV16	E2	304	9	RFKKHCTLY		11863
HPV16	E2	278	11	RINCNSNTPI		11864
HPV16	E2	37	8	RLECAIYY		11865
HPV16	E2	7	9	RLNVCQDKI		11866
HPV16	E2	7	10	RLNVCQDKIL		11867
HPV16	E2	302	10	RYRFKKHCTL		11868
HPV16	E2	302	11	RYRFKKHCTLY		11869
HPV16	E2	23	8	STDLRDHI		11870
HPV16	E2	23	10	STDLRDHIIDY		11871
HPV16	E2	23	11	STDLRDHIIDYW		11872
HPV16	E2	261	8	SVDSAPIL		11873
HPV16	E2	261	11	SVDSAPILTAF		11874
HPV16	E2	144	11	SVTVVEGQVDY		11875
HPV16	E2	355	8	TITVSTGF		11876
HPV16	E2	355	9	TITVSTGFM		11877
HPV16	E2	355	11	TITVSTGFMSI		11878
HPV16	E2	61	10	TLAVSKNKAL		11879
HPV16	E2	78	10	TLETYNSQY		11880
HPV16	E2	297	9	TLKCLRYRF		11881
HPV16	E2	93	10	TLQDVSLEVY		11882
HPV16	E2	93	11	TLQDVSLEVYL		11883
HPV16	E2	334	8	TLTYDSEW		11884
HPV16	E2	310	10	TLTYAVSSTW		11885
HPV16	E2	128	10	TMHYTNWTHI		11886
HPV16	E2	128	11	TMHYTNWTHIY		11887
HPV16	E2	116	10	TVEVQFDGDI		11888
HPV16	E2	357	9	TVSTGFMSI		11889
HPV16	E2	146	9	TVVEGQVDY		11890
HPV16	E2	146	10	TVVEGQVDYY		11891
HPV16	E2	336	11	TYDSEWQRDQF		11892
HPV16	E2	192	9	VILCPTSVF		11893

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E2	333	9	VTLYDSEW		11894
HPV16	E2	145	10	VTVEGQVDY		11895
HPV16	E2	145	11	VTVEGQVDYY		11896
HPV16	E2	147	8	VVEGQVDY		11897
HPV16	E2	147	9	VVEGQVDYY		11898
HPV16	E2	147	11	VVEGQVDYYGL		11899
HPV16	E2	183	11	VVEVIAGGQVI		11900
HPV16	E2	101	10	VYLTAPTGCI		11901
HPV16	E2	92	8	WTLQDVSL		11902
HPV16	E2	92	11	WTLQDVSLVY		11903
HPV16	E2	102	9	YLTAPTGCI		11904
HPV16	E2	312	8	YTAVSSTW		11905
HPV16	E2	312	10	YTAVSSTWHW		11906
HPV16	E2	131	8	YTNWTHY		11907
HPV16	E2	131	9	YTNWTHYI		11908
HPV16	E2	115	11	YTVVEQFDGDI		11909
HPV16	E2	159	9	YVHEGIRTY		11910
HPV16	E2	159	10	YVHEGIRTYF		11911
HPV16	E2	32	11	YWKHMRLECAI		11912
HPV16	E2	154	11	YYGLYYVHEGI		11913
HPV16	E2	43	9	YYKAREMGF		11914
HPV16	E2	158	10	YYVHEGIRTY		11915
HPV16	E2	158	11	YYVHEGIRTYF		11916
HPV16	E5	56	8	AFRCFIVY		11917
HPV16	E5	56	9	AFRCFIVYI		11918
HPV16	E5	56	10	AFRCFIVYII		11919
HPV16	E5	56	11	AFRCFIVYIIF		11920
HPV16	E5	18	10	CFCVLLCVCL		11921
HPV16	E5	18	11	CFCVLLCVCLL		11922
HPV16	E5	59	8	CFIVYIIF		11923
HPV16	E5	59	10	CFIVYIIFVY		11924
HPV16	E5	59	11	CFIVYIIFVYI		11925
HPV16	E5	14	9	CFLLCFCVL		11926
HPV16	E5	14	10	CFLLCFCVLL		11927
HPV16	E5	26	8	CLLIRPLL		11928
HPV16	E5	26	9	CLLIRPLLL		11929
HPV16	E5	24	9	CVCLLIRPL		11930
HPV16	E5	24	10	CVCLLIRPLL		11931
HPV16	E5	24	11	CVCLLIRPLLL		11932
HPV16	E5	20	8	CVLLCVCL		11933
HPV16	E5	20	9	CVLLCVCLL		11934
HPV16	E5	20	10	CVLLCVCLLI		11935
HPV16	E5	5	8	DTASTILL		11936
HPV16	E5	5	11	DTASTILLACF		11937
HPV16	E5	60	9	FIVYIIFVY		11938
HPV16	E5	60	10	FIVYIIFVYI		11939

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E5	72	9	FLIHTHARF		11940
HPV16	E5	72	10	FLIHTHARFL		11941
HPV16	E5	72	11	FLIHTHARFLI		11942
HPV16	E5	15	8	FLLCFCVL		11943
HPV16	E5	15	9	FLLCFCVLL		11944
HPV16	E5	66	8	FVYIPLFL		11945
HPV16	E5	66	9	FVYIPLFLI		11946
HPV16	E5	75	8	IITHARFLI		11947
HPV16	E5	65	8	IFVYIPLF		11948
HPV16	E5	65	9	IFVYIPLFL		11949
HPV16	E5	65	10	IFVYIPLFLI		11950
HPV16	E5	64	8	IIFVYIPL		11951
HPV16	E5	64	9	IIFVYIPLF		11952
HPV16	E5	64	10	IIFVYIPLFL		11953
HPV16	E5	64	11	IIFVYIPLFLI		11954
HPV16	E5	43	8	IILVLLWL		11955
HPV16	E5	43	9	IILVLLWLW		11956
HPV16	E5	44	8	ILVLLWL		11957
HPV16	E5	51	10	ITAASAFRCF		11958
HPV16	E5	51	11	ITAASAFRCFI		11959
HPV16	E5	61	8	IVYIIFVY		11960
HPV16	E5	61	9	IVYIIFVYI		11961
HPV16	E5	61	11	IVYIIFVYIPL		11962
HPV16	E5	71	10	LFLIHTHARF		11963
HPV16	E5	71	11	LFLIHTHARFL		11964
HPV16	E5	73	8	LHTHARF		11965
HPV16	E5	73	9	LHTHARFL		11966
HPV16	E5	73	10	LHITHARFLI		11967
HPV16	E5	42	8	LILVLLL		11968
HPV16	E5	42	9	LILVLLWL		11969
HPV16	E5	42	10	LILVLLWLW		11970
HPV16	E5	11	9	LLACFLLCF		11971
HPV16	E5	16	8	LLCFCVLL		11972
HPV16	E5	22	8	LLCVCLLI		11973
HPV16	E5	22	11	LLCVCLLIRPL		11974
HPV16	E5	27	8	LLIRPLLI		11975
HPV16	E5	32	8	LLLSVSTY		11976
HPV16	E5	32	11	LLLSVSTYTSI		11977
HPV16	E5	47	11	LLWITAASAF		11978
HPV16	E5	33	10	LLSVSTYTSI		11979
HPV16	E5	33	11	LLSVSTYTSLI		11980
HPV16	E5	48	10	LLWITAASAF		11981
HPV16	E5	49	9	LWITAASAF		11982
HPV16	E5	1	11	MTNLDTASTTL		11983
HPV16	E5	3	9	NLDTASTTL		11984
HPV16	E5	3	10	NLDTASTTLL		11985

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E5	70	11	PLFLIHTHARF		11986
HPV16	E5	31	9	PLLLSVSTY		11987
HPV16	E5	41	8	SLIILVLL		11988
HPV16	E5	41	9	SLIILVLL		11989
HPV16	E5	41	10	SLIILVLLW		11990
HPV16	E5	41	11	SLIILVLLWI		11991
HPV16	E5	8	8	STLLACF		11992
HPV16	E5	8	9	STLLACFL		11993
HPV16	E5	8	10	STLLACFLL		11994
HPV16	E5	37	8	STYTSII		11995
HPV16	E5	37	9	STYTSIIL		11996
HPV16	E5	37	11	STYTSIILVL		11997
HPV16	E5	35	8	SVSTYTSI		11998
HPV16	E5	35	9	SVSTYTSII		11999
HPV16	E5	35	10	SVSTYTSIIL		12000
HPV16	E5	35	11	SVSTYTSIIL		12001
HPV16	E5	10	8	TLLACFLL		12002
HPV16	E5	10	10	TLLACFLLCF		12003
HPV16	E5	9	8	TLLACFL		12004
HPV16	E5	9	9	TLLACFLL		12005
HPV16	E5	9	11	TLLACFLLCF		12006
HPV16	E5	38	8	TYTSLIIL		12007
HPV16	E5	38	10	TYTSLIILVL		12008
HPV16	E5	38	11	TYTSLIILVLL		12009
HPV16	E5	21	8	VLLCVCLL		12010
HPV16	E5	21	9	VLLCVCLLI		12011
HPV16	E5	62	8	VYIIFVYI		12012
HPV16	E5	62	10	VYIIFVYIPL		12013
HPV16	E5	62	11	VYIIFVYIPLF		12014
HPV16	E5	67	8	VYIPLFI		12015
HPV16	E5	50	8	WITAASAF		12016
HPV16	E5	50	11	WITAASAFRCF		12017
HPV16	E5	63	9	YIIFVYIPL		12018
HPV16	E5	63	10	YIIFVYIPLF		12019
HPV16	E5	63	11	YIIFVYIPLFL		12020
HPV16	E5	39	9	YTSIILVL		12021
HPV16	E5	39	10	YTSIILVLL		12022
HPV16	E5	39	11	YTSIILVLL		12023
HPV16	E6	53	9	AFRDLICIV		12024
HPV16	E6	68	9	AVCDKCLKF		12025
HPV16	E6	68	10	AVCDKCLKFY		12026
HPV16	E6	110	8	CINCQKPL		12027
HPV16	E6	58	10	CIVYRDGNPY		12028
HPV16	E6	73	8	CLKFYSKI		12029
HPV16	E6	73	11	CLKFYSKISEY		12030
HPV16	E6	23	8	CTELQTTI		12031

Table X.
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E6	23	11	CTELQTTIHDI		12032
HPV16	E6	37	8	CVYCKQQL		12033
HPV16	E6	37	9	CVYCKQQLL		12034
HPV16	E6	87	9	CYSLYGTTL	0.0460	12035
HPV16	E6	51	9	DFAFRDLCI	0.0003	12036
HPV16	E6	51	11	DFAFRDLCIVY		12037
HPV16	E6	32	8	DILECVY		12038
HPV16	E6	25	9	ELQTTIHDI		12039
HPV16	E6	25	10	ELQTTIHDII		12040
HPV16	E6	25	11	ELQTTIHDII		12041
HPV16	E6	48	10	EYDFAFRDL		12042
HPV16	E6	82	9	EYRHYCYSL		12043
HPV16	E6	82	10	EYRHYCYSLY	0.0051	12044
HPV16	E6	76	8	FYSKISEY	0.0007	12045
HPV16	E6	76	11	FYSKISEYRHY	0.0004	12046
HPV16	E6	92	8	GTTLEQQY		12047
HPV16	E6	125	8	HLDDKKQRF		12048
HPV16	E6	125	11	HLDDKKQRFHNI		12049
HPV16	E6	85	11	HYCYSLYGTTL	0.0650	12050
HPV16	E6	34	11	ILECVYCKQQL		12051
HPV16	E6	59	9	IVYRDGNPY	0.0001	12052
HPV16	E6	75	9	KFYSKISEY		12053
HPV16	E6	79	8	KISEYRHY		12054
HPV16	E6	79	10	KISEYRHYCY		12055
HPV16	E6	18	9	KLPQLCTEL		12056
HPV16	E6	107	11	LIRNCQKPL		12057
HPV16	E6	44	9	LLRREVYDF		12058
HPV16	E6	44	11	LLRREVYDFAF		12059
HPV16	E6	90	10	LYGTTLEQQY		12060
HPV16	E6	134	11	NIRGRWTGRM		12061
HPV16	E6	102	10	PLCDLLIRCI		12062
HPV16	E6	116	11	PLCPEEKQRIL		12063
HPV16	E6	66	9	PYAVCDKCL	0.0078	12064
HPV16	E6	66	11	PYAVCDKCLKF	0.1100	12065
HPV16	E6	21	10	QLCTELQTTI		12066
HPV16	E6	43	8	QLLRREYVY		12067
HPV16	E6	43	10	QLLRREYVDF		12068
HPV16	E6	27	8	QTTIHDII		12069
HPV16	E6	27	9	QTTIHDII		12070
HPV16	E6	98	9	QYNKPLCDL	0.0001	12071
HPV16	E6	98	10	QYNKPLCDLL	0.0015	12072
HPV16	E6	98	11	QYNKPLCDLLI		12073
HPV16	E6	131	9	RFNIRGRW	0.0220	12074
HPV16	E6	151	8	RTRRETQL		12075
HPV16	E6	89	11	SLYGTLEQQY		12076
HPV16	E6	29	11	TIHDIIIECVY		12077

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E6	94	10	TLEQQYNKPL		12078
HPV16	E6	28	8	TTIHDIL		12079
HPV16	E6	93	11	TTLEQQYNKPL		12080
HPV16	E6	38	8	VYCKQQL	0.0069	12081
HPV16	E6	49	9	VYDFAFRDL	0.0150	12082
HPV16	E6	49	11	VYDFAFRDLCL		12083
HPV16	E6	60	8	VYRDGNPY	0.0001	12084
HPV16	E6	68	9	CVQSTHVDI		12085
HPV16	E7	75	8	DIRTLEDL		12086
HPV16	E7	75	9	DIRTLEDLL		12087
HPV16	E7	75	10	DIRTLEDLLM		12088
HPV16	E7	81	9	DLLMGTLGI		12089
HPV16	E7	14	9	DLQPETDIL		12090
HPV16	E7	14	10	DLQPETTDLY		12091
HPV16	E7	21	8	DLYCYEQL		12092
HPV16	E7	4	8	DPTLHEY		12093
HPV16	E7	4	9	DPTLHEYM		12094
HPV16	E7	4	10	DPTLHEYML		12095
HPV16	E7	4	8	ETDLYCY	0.0001	12096
HPV16	E7	18	8	ETDLYCYEQL		12097
HPV16	E7	18	11	GTLGIVCPI		12098
HPV16	E7	85	9	HVDIRTLEDL		12099
HPV16	E7	73	10	HVDIRTLEDLL		12100
HPV16	E7	73	11	LLMGTLGI		12101
HPV16	E7	82	8	LLMGTLGI		12102
HPV16	E7	83	11	MLDLQPETDIL		12103
HPV16	E7	12	11	PTLHEYML		12104
HPV16	E7	6	8	PTLHEYMLDL		12105
HPV16	E7	6	10	RLCVQSTHVDI		12106
HPV16	E7	66	11	RTLEDLLM		12107
HPV16	E7	77	8	RTLEDLLMGTL		12108
HPV16	E7	77	11	STHVDIRTL		12109
HPV16	E7	71	9	TFCKCKDSTL		12110
HPV16	E7	56	10	TLEDLLMGTL		12111
HPV16	E7	78	10	TLGIVCPI		12112
HPV16	E7	86	8	TLHEYMLDL		12113
HPV16	E7	7	9	TTDLYCYEQL		12114
HPV16	E7	19	10	VTFCCKCDSTL		12115
HPV16	E7	55	11	AISTSETTY		12116
HPV16	L1	373	9	AVGENVPDDL		12117
HPV16	L1	292	10	AVGENVPDDL		12118
HPV16	L1	292	11	AVGENVPDDL		12119
HPV16	L1	70	9	AVGIPIYFPI		12120
HPV16	L1	205	10	AVNPGDCPPL		12121
HPV16	L1	172	11	CISMDYKQTQL		12122
HPV16	L1	183	9	CLIGCKPPI		12123
HPV16	L1	251	10	CTSICKYPDY		

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	251	11	CTSICKYDPYI		12124
HPV16	L1	13	9	CYENDVNVY		12125
HPV16	L1	13	11	CYENDVNVYHI		12126
HPV16	L1	249	9	DICTSICKY		12127
HPV16	L1	484	11	DLDDQFPLGRKF		12128
HPV16	L1	397	8	DLQFIFQL		12129
HPV16	L1	397	11	DLQFIFQLCKI		12130
HPV16	L1	225	10	DMVDTGFGAM		12131
HPV16	L1	154	8	DTENASAY		12132
HPV16	L1	228	9	DTGFGAMDF		12133
HPV16	L1	361	8	DTTRSTNM		12134
HPV16	L1	361	10	DTTRSTNMSL		12135
HPV16	L1	442	11	DTYRFVTSQAI		12136
HPV16	L1	412	9	DVMTYIHSM		12137
HPV16	L1	17	8	DVNVYHIF		12138
HPV16	L1	17	9	DVNVYHIF		12139
HPV16	L1	17	11	DVNVYHIFQM		12140
HPV16	L1	259	10	DYIKMVSEPY		12141
HPV16	L1	176	9	DYKQTQLCL		12142
HPV16	L1	176	10	DYKQTQLCLI		12143
HPV16	L1	378	9	ETTYKNTNF		12144
HPV16	L1	132	8	EVGRGQPL		12145
HPV16	L1	474	8	EVNLKEKF		12146
HPV16	L1	245	10	EVPLDICTSI		12147
HPV16	L1	395	8	EYDLQFIF		12148
HPV16	L1	395	10	EYDLQFIFQL		12149
HPV16	L1	388	9	EYLRHGEEY		12150
HPV16	L1	388	11	EYLRHGEEYDL		12151
HPV16	L1	52	8	EYVARTNI		12152
HPV16	L1	52	9	EYVARTNIY		12153
HPV16	L1	52	10	EYVARTNIYY		12154
HPV16	L1	24	8	FFQMSLWL		12155
HPV16	L1	273	9	FFYLRREQM		12156
HPV16	L1	273	10	FFYLRREQMF		12157
HPV16	L1	400	8	FIFQLCKI		12158
HPV16	L1	400	10	FIFQLCKITL		12159
HPV16	L1	5	10	FIYILVITCY		12160
HPV16	L1	472	10	FWEVNLKEKF		12161
HPV16	L1	274	8	FYLRREQM		12162
HPV16	L1	274	9	FYLRREQMF		12163
HPV16	L1	116	9	FYNPDQRL		12164
HPV16	L1	116	11	FYNPDQRLVW		12165
HPV16	L1	230	10	GFGAMDFITL		12166
HPV16	L1	110	8	GPPDTSFY		12167
HPV16	L1	348	8	GICWGNQL		12168
HPV16	L1	348	9	GICWGNQLF		12169

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	142	8	GISGHPLL		12170
HPV16	L1	142	11	GISGHPLLNKL		12171
HPV16	L1	499	8	GLKAKPKF		12172
HPV16	L1	499	10	GLKAKPKFTL		12173
HPV16	L1	431	10	GLQPPGGTL		12174
HPV16	L1	93	9	GLQYRVFRI		12175
HPV16	L1	93	11	GLQYRVFRIHL		12176
HPV16	L1	438	9	GTLEDYRF		12177
HPV16	L1	166	8	GVDNRECI		12178
HPV16	L1	166	10	GVDNRECISM		12179
HPV16	L1	130	10	GVEVGRGQPL		12180
HPV16	L1	140	9	GVGISGHPL		12181
HPV16	L1	140	10	GVGISGHPLL		12182
HPV16	L1	22	8	HIFFQMSL		12183
HPV16	L1	22	9	HIFFQMSLW		12184
HPV16	L1	22	10	HIFFQMSLWL		12185
HPV16	L1	102	8	HLPDPNKF		12186
HPV16	L1	102	10	HLPDPNKFGF		12187
HPV16	L1	457	11	HTPPAPKEDPL		12188
HPV16	L1	23	8	IFFQMSLW		12189
HPV16	L1	23	9	IFFQMSLWL		12190
HPV16	L1	332	8	IFNKPYWL		12191
HPV16	L1	401	9	IFQLCKITL		12192
HPV16	L1	424	9	ILEDWNFGL		12193
HPV16	L1	86	9	ILVPKVSGL		12194
HPV16	L1	86	11	ILVPKVSGLQY		12195
HPV16	L1	11	11	ITCYENDVNVY		12196
HPV16	L1	407	8	ITLTADVM		12197
HPV16	L1	407	10	ITLTADVMTY		12198
HPV16	L1	407	11	ITLTADVMTYI		12199
HPV16	L1	6	9	IYILVITCY		12200
HPV16	L1	59	10	IYHAGTSRL		12201
HPV16	L1	59	11	IYHAGTSRLL		12202
HPV16	L1	108	9	KFGFPDTSF		12203
HPV16	L1	108	10	KFGFPDTSFY		12204
HPV16	L1	493	8	KFLAQAGL		12205
HPV16	L1	480	9	KFSADLDQF		12206
HPV16	L1	480	11	KFSADLDQFPL		12207
HPV16	L1	85	10	KILVPKVSGL		12208
HPV16	L1	406	9	KITLTADVM		12209
HPV16	L1	406	11	KITLTADVMTY		12210
HPV16	L1	151	11	KLDDTENASAY		12211
HPV16	L1	262	11	KMVSEPYGDSL		12212
HPV16	L1	90	10	KVSGLYRVF		12213
HPV16	L1	46	8	KVSTDEY		12214
HPV16	L1	256	8	KYPDYIKM		12215

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	469	9	KYTFWEVNL		12216
HPV16	L1	272	10	LFYLRREQM		12217
HPV16	L1	272	11	LFYLRREQMF		12218
HPV16	L1	184	8	LIGCKPPI		12219
HPV16	L1	216	11	LINTVIQDGM		12220
HPV16	L1	68	8	LLAVGHIPY		12221
HPV16	L1	68	9	LLAVGHIPYF		12222
HPV16	L1	68	11	LLAVGHIPYFPI		12223
HPV16	L1	409	8	LTADVMTY		12224
HPV16	L1	409	9	LTADVMTYI		12225
HPV16	L1	87	8	LVPKVSGL		12226
HPV16	L1	87	10	LVPKVSGLQY		12227
HPV16	L1	29	10	LWLPSEATVY		12228
HPV16	L1	29	11	LWLPSEATVYL		12229
HPV16	L1	414	11	MTYIIISMNSTI		12230
HPV16	L1	226	9	MVDTGFGAM		12231
HPV16	L1	226	11	MVDTGFGAMDF		12232
HPV16	L1	263	10	MVSEPYGDSL		12233
HPV16	L1	263	11	MVSEPYGDSL		12234
HPV16	L1	325	8	MVTSDAQI		12235
HPV16	L1	325	9	MVTSDAQIF		12236
HPV16	L1	58	11	NIYHAGTSRL		12237
HPV16	L1	311	8	NLASSNYF		12238
HPV16	L1	476	10	NLKEKFSADL		12239
HPV16	L1	367	8	NMSLCAAI		12240
HPV16	L1	383	8	NTNFKEYL		12241
HPV16	L1	218	9	NTVIQDGM		12242
HPV16	L1	296	8	NVPDDLVI		12243
HPV16	L1	19	9	NVYHIFQM		12244
HPV16	L1	19	11	NVYHIFQMSL		12245
HPV16	L1	316	10	NYFPTPSGSM		12246
HPV16	L1	77	10	PIKKPNNNKI		12247
HPV16	L1	77	11	PIKKPNNNKIL		12248
HPV16	L1	247	8	PLDICTSI		12249
HPV16	L1	247	11	PLDICTSICKY		12250
HPV16	L1	213	9	PLELINTVI		12251
HPV16	L1	489	8	PLGRKFLL		12252
HPV16	L1	138	11	PLGVGISGHL		12253
HPV16	L1	466	8	PLKKYTFW		12254
HPV16	L1	43	11	PVSKVVSTDEY		12255
HPV16	L1	267	8	PYGDSLFF		12256
HPV16	L1	267	9	PYGDSLFFY		12257
HPV16	L1	267	10	PYGDSLFFYL		12258
HPV16	L1	399	9	QFIFQLCKI		12259
HPV16	L1	399	11	QFIFQLCKITL		12260
HPV16	L1	487	8	QFPLGRKF		12261

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	487	9	QFPLGRKFL		12262
HPV16	L1	487	10	QFPLGRKFL		12263
HPV16	L1	331	8	QIFNKPYW		12264
HPV16	L1	331	9	QIFNKPYWL		12265
HPV16	L1	181	11	QLCLIGCKPPI		12266
HPV16	L1	280	8	QMFVRHLF		12267
HPV16	L1	2	8	QVTFIYIL		12268
HPV16	L1	2	10	QVTFIYILVI		12269
HPV16	L1	95	9	QYRVFRIHL		12270
HPV16	L1	445	8	RFVTSQAI		12271
HPV16	L1	100	10	RIHLDPNKF		12272
HPV16	L1	67	9	RLAVGHPY		12273
HPV16	L1	67	10	RLAVGHPYF		12274
HPV16	L1	115	10	SFYNPDTQRL		12275
HPV16	L1	253	8	SICKYPDY		12276
HPV16	L1	253	9	SICKYPDYI		12277
HPV16	L1	253	11	SICKYPDYIKM		12278
HPV16	L1	271	11	SLFFYLRRQEM		12279
HPV16	L1	28	11	SLWLPSEATVY		12280
HPV16	L1	174	9	SMDYKQTQL		12281
HPV16	L1	174	11	SMDYKQTQLCL		12282
HPV16	L1	419	10	SMNSTILEDW		12283
HPV16	L1	324	9	SMVTSDAQI		12284
HPV16	L1	324	10	SMVTSDAQIF		12285
HPV16	L1	308	10	STANLASSNY		12286
HPV16	L1	308	11	STANLASSNYF		12287
HPV16	L1	49	11	STDEYVARTNI		12288
HPV16	L1	422	9	STILEDWNF		12289
HPV16	L1	422	11	STILEDWNFGL		12290
HPV16	L1	365	10	STNMSLCAAI		12291
HPV16	L1	521	11	STAKRKKRKL		12292
HPV16	L1	4	8	TFIYILVI		12293
HPV16	L1	4	11	TFIYILVITCY		12294
HPV16	L1	471	11	TFWEVNLKEF		12295
HPV16	L1	423	8	TILEDWNF		12296
HPV16	L1	423	10	TILEDWNFGL		12297
HPV16	L1	439	8	TLEDYTRF		12298
HPV16	L1	238	11	TLQANKSEVPL		12299
HPV16	L1	408	9	TLTADVMYTY		12300
HPV16	L1	408	10	TLTADVMYTI		12301
HPV16	L1	522	10	TTAKRKKRKL		12302
HPV16	L1	362	9	TTRSTNMSL		12303
HPV16	L1	379	8	TTYKNTNF		12304
HPV16	L1	379	11	TTYKNTNFKEY		12305
HPV16	L1	219	8	TVIQDQDM		12306
HPV16	L1	358	11	TVVDTTRSTNM		12307

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	415	10	TYIHSMNSTI		12308
HPV16	L1	415	11	TYIHSMNSTIL		12309
HPV16	L1	380	10	TYKNTNFKEY		12310
HPV16	L1	380	11	TYKNTNFKEYL		12311
HPV16	L1	443	10	TYRFVTSQAI		12312
HPV16	L1	413	8	VMTYIHSM		12313
HPV16	L1	3	9	VTFIYILVI		12314
HPV16	L1	326	8	VTSDAQIF		12315
HPV16	L1	359	10	VVDTRSTNM		12316
HPV16	L1	20	8	VYHIFQFM		12317
HPV16	L1	20	10	VYHIFQMSL		12318
HPV16	L1	20	11	VYHIFQMSLW		12319
HPV16	L1	30	9	WLPSEATVY		12320
HPV16	L1	30	10	WLPSEATVYL		12321
HPV16	L1	317	9	YPPTPSGSM		12322
HPV16	L1	416	9	YIHSMNSTI		12323
HPV16	L1	416	10	YIHSMNSTIL		12324
HPV16	L1	302	11	YIKGSGSTANL		12325
HPV16	L1	260	9	YIKMVSEPY		12326
HPV16	L1	7	8	YILVITCY		12327
HPV16	L1	389	8	YLRHGEY		12328
HPV16	L1	389	10	YLRHGEYDL		12329
HPV16	L1	275	8	YLRREQMF		12330
HPV16	L1	470	8	YTFWEVNL		12331
HPV16	L1	53	8	YVARTNIY		12332
HPV16	L1	53	9	YVARTNIYY		12333
HPV16	L1	60	9	YYHAGTSRL		12334
HPV16	L1	60	10	YYHAGTSRLL		12335
HPV16	L1	241	9	AFITPTKL		12336
HPV16	L2	241	10	AFITPTKLI		12337
HPV16	L2	356	10	ALPTSINNGL		12338
HPV16	L2	356	11	ALPTSINNGLY		12339
HPV16	L2	293	9	ALTSRRTGI		12340
HPV16	L2	293	11	ALTSRRTGIRY		12341
HPV16	L2	256	11	AYEGIDVDNTL		12342
HPV16	L2	282	8	DFLDIVL		12343
HPV16	L2	329	11	DFSTDSABEI		12344
HPV16	L2	445	8	DFYLHPSY		12345
HPV16	L2	445	9	DFYLHPSYY		12346
HPV16	L2	445	10	DFYLHPSYYM		12347
HPV16	L2	445	11	DFYLHPSYYML		12348
HPV16	L2	31	11	DIIPKVEGKI		12349
HPV16	L2	285	10	DIVALHRPAL		12350
HPV16	L2	367	8	DIYADDFI		12351
HPV16	L2	84	10	DTLAPVRPPL		12352
HPV16	L2	140	9	DTTPALDI		12353

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L2	261	8	DVDNTLYF		12354
HPV16	L2	195	8	EIPMDTFI		12355
HPV16	L2	340	10	ELQITPSTY		12356
HPV16	L2	176	8	ETGGHFTL		12357
HPV16	L2	242	8	FITPTKL		12358
HPV16	L2	242	9	FITPTKLI		12359
HPV16	L2	242	11	FITPTKLITY		12360
HPV16	L2	181	8	FTLSSTI		12361
HPV16	L2	446	8	FYLHPSYY		12362
HPV16	L2	446	9	FYLHPSYYM		12363
HPV16	L2	446	10	FYLHPSYYML		12364
HPV16	L2	259	8	GIDVDNTL		12365
HPV16	L2	259	9	GIDVDNTLY		12366
HPV16	L2	259	10	GIDVDNTLYF		12367
HPV16	L2	364	10	GLYDIYADDF		12368
HPV16	L2	364	11	GLYDIYADDFI		12369
HPV16	L2	26	8	GTCPPDI		12370
HPV16	L2	65	8	GTGGRTGY		12371
HPV16	L2	65	9	GTGGRTGYI		12372
HPV16	L2	65	11	GTGGRTGYIPL		12373
HPV16	L2	76	11	GTRPPTATDTL		12374
HPV16	L2	52	9	GVFFGGLGI		12375
HPV16	L2	392	9	GYIPANTTI		12376
HPV16	L2	392	11	GYIPANTTIF		12377
HPV16	L2	180	9	HFTLSSTI		12378
HPV16	L2	325	9	HYYYDFSTI		12379
HPV16	L2	439	8	IIADAGDF		12380
HPV16	L2	439	9	IIADAGDFY		12381
HPV16	L2	439	10	IIADAGDFYL		12382
HPV16	L2	32	10	IIPKVEGKTI		12383
HPV16	L2	45	10	ILQYGSMGVF		12384
HPV16	L2	45	11	ILQYGSMGVFF		12385
HPV16	L2	420	8	ITDQAPSL		12386
HPV16	L2	420	9	ITDQAPSLI		12387
HPV16	L2	420	11	ITDQAPSLIPI		12388
HPV16	L2	243	8	ITPTKLI		12389
HPV16	L2	243	10	ITPTKLITY		12390
HPV16	L2	135	11	ITSTDTIPAI		12391
HPV16	L2	250	8	ITYDNPAY		12392
HPV16	L2	250	11	ITYDNPAYEGI		12393
HPV16	L2	286	9	IVALHRPAL		12394
HPV16	L2	430	8	IVPGSPQY		12395
HPV16	L2	430	10	IVPGSPQYTI		12396
HPV16	L2	430	11	IVPGSPQYTII		12397
HPV16	L2	105	10	IVSLVEETSF		12398
HPV16	L2	105	11	IVSLVEETSFI		12399

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L2	248	10	KLITYDNPAY		12400
HPV16	L2	39	8	KTIADQIL		12401
HPV16	L2	39	10	KTIADQILQV		12402
HPV16	L2	35	11	KVEGKTIADQI		12403
HPV16	L2	323	8	KVIHYYYDF		12404
HPV16	L2	323	11	KVHYYYDFSTI		12405
HPV16	L2	236	8	KVVDPAFI		12406
HPV16	L2	427	11	LPIVPGSPQY		12407
HPV16	L2	249	9	LITYDNPAY		12408
HPV16	L2	294	8	LTSRRTGI		12409
HPV16	L2	294	10	LTSRRTGIRY		12410
HPV16	L2	108	8	LVEETSI		12411
HPV16	L2	410	9	LVSGDPI		12412
HPV16	L2	410	11	LVSGDPININ		12413
HPV16	L2	365	9	LYDIYADDF		12414
HPV16	L2	365	10	LYDIYADDFI		12415
HPV16	L2	266	10	LYFSSNDNSI		12416
HPV16	L2	454	9	MLRKRKRL		12417
HPV16	L2	454	11	MLRKRKRRLPY		12418
HPV16	L2	276	8	NIAPDPI		12419
HPV16	L2	276	9	NIAPDPIFL		12420
HPV16	L2	276	11	NIAPDPIFLDI		12421
HPV16	L2	407	10	NIPLVSGPI		12422
HPV16	L2	419	9	NITDQAPSL		12423
HPV16	L2	419	10	NITDQAPSLI		12424
HPV16	L2	397	10	NTTIPFGGAY		12425
HPV16	L2	208	9	NTVTSSTPI		12426
HPV16	L2	192	10	NYEEIPMDTF		12427
HPV16	L2	192	11	NYEEIPMDTFI		12428
HPV16	L2	401	8	PFGGAYNI		12429
HPV16	L2	401	10	PFGGAYNIPL		12430
HPV16	L2	417	11	PINITDQAPSL		12431
HPV16	L2	215	11	PIGSRPVARL		12432
HPV16	L2	429	9	PIVPGSPQY		12433
HPV16	L2	429	11	PIVPGSPQYTI		12434
HPV16	L2	409	8	PLVSGPDI		12435
HPV16	L2	409	10	PLVSGDPI		12436
HPV16	L2	161	9	PTFTDPSVL		12437
HPV16	L2	172	10	PTPAETGGHF		12438
HPV16	L2	358	8	PTSINNGL		12439
HPV16	L2	358	9	PTSINNGLY		12440
HPV16	L2	358	11	PTSINNGLYDI		12441
HPV16	L2	221	8	PVARLGLY		12442
HPV16	L2	97	9	PVGPSDPSI		12443
HPV16	L2	381	10	PVPSVPSTSL		12444
HPV16	L2	463	9	PYFFSDVSL		12445

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L2	44	8	QILQYGSM		12446
HPV16	L2	44	11	QILQYGSMSGVF		12447
HPV16	L2	342	8	QIITPSTY		12448
HPV16	L2	310	11	QTLTRSGKSI		12449
HPV16	L2	234	9	QVKVVDPAF		12450
HPV16	L2	234	10	QVKVVDPAFI		12451
HPV16	L2	47	8	QYGSMSGVF		12452
HPV16	L2	47	9	QYGSMSGVFF		12453
HPV16	L2	436	11	QYTHIADAGDF		12454
HPV16	L2	305	8	RIGNKQTL		12455
HPV16	L2	461	11	RLPYFFSDVSL		12456
HPV16	L2	298	9	RTGIRYSRI		12457
HPV16	L2	9	10	RTKRASATQL		12458
HPV16	L2	9	11	RTKRASATQLY		12459
HPV16	L2	313	8	RTRSCKSI		12460
HPV16	L2	302	11	RYSRIGNKQTL		12461
HPV16	L2	319	8	SIGAKVHY		12462
HPV16	L2	319	9	SIGAKVHY		12463
HPV16	L2	319	10	SIGAKVHY		12464
HPV16	L2	274	10	SINIAPDPDF		12465
HPV16	L2	274	11	SINIAPDPDFL		12466
HPV16	L2	360	9	SINNGLYDI		12467
HPV16	L2	360	10	SINNGLYDI		12468
HPV16	L2	125	9	SIPPDVSGF		12469
HPV16	L2	125	11	SIPPDVSGFSI		12470
HPV16	L2	104	11	SIVSLVEETSF		12471
HPV16	L2	107	8	SLVEETSF		12472
HPV16	L2	107	9	SLVEETSF		12473
HPV16	L2	50	9	SMGVFFGGL		12474
HPV16	L2	50	11	SMGVFFGGLGI		12475
HPV16	L2	138	8	STDITPAI		12476
HPV16	L2	138	9	STDITPAI		12477
HPV16	L2	138	11	STDITPAILDI		12478
HPV16	L2	189	8	STHNYEEI		12479
HPV16	L2	189	10	STHNYEEIPM		12480
HPV16	L2	331	9	STIDSAAEI		12481
HPV16	L2	331	11	STIDSAAEIEL		12482
HPV16	L2	186	8	STISTHNY		12483
HPV16	L2	186	11	STISTHNYEEI		12484
HPV16	L2	387	8	STLSGYI		12485
HPV16	L2	347	11	STYTTTSHAAL		12486
HPV16	L2	384	10	SVPSTLSGY		12487
HPV16	L2	384	11	SVPSTLSGYI		12488
HPV16	L2	162	8	TFTDPSVL		12489
HPV16	L2	40	9	TIADQILQY		12490
HPV16	L2	332	8	TIDSAAEI		12491

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L2	332	10	TIDSAEEIEL		12492
HPV16	L2	438	9	TIADAGDF		12493
HPV16	L2	438	10	TIADAGDFY		12494
HPV16	L2	438	11	TIADAGDFYL		12495
HPV16	L2	399	8	TIPFGGAY		12496
HPV16	L2	399	10	TIPFGGAYNI		12497
HPV16	L2	187	10	TISTHNYEEI		12498
HPV16	L2	85	9	TLAPVRPPL		12499
HPV16	L2	311	10	TLTRSGKSI		12500
HPV16	L2	265	11	TLYFSSNDNSI		12501
HPV16	L2	156	8	TTIINNPTF		12502
HPV16	L2	398	9	TTIIFGGAY		12503
HPV16	L2	398	11	TTIIFGGAYNI		12504
HPV16	L2	141	8	TTTAILDI		12505
HPV16	L2	244	9	TTPTKLITY		12506
HPV16	L2	351	11	TTSHAALPTSI		12507
HPV16	L2	136	10	TTSTDTTPAI		12508
HPV16	L2	136	11	TTSTDTTPAIL		12509
HPV16	L2	350	8	TTTSHAAL		12510
HPV16	L2	153	11	TTVTTHNNPTF		12511
HPV16	L2	209	8	TVTSSTPI		12512
HPV16	L2	154	10	TVTTHNNPTF		12513
HPV16	L2	251	10	TYDNPAYEGI		12514
HPV16	L2	348	10	TYTTTSHAAL		12515
HPV16	L2	53	8	VFFGGLGI		12516
HPV16	L2	155	9	VTTIINNPTF		12517
HPV16	L2	464	8	YFFSDVSL		12518
HPV16	L2	267	9	YFSSNDNSI		12519
HPV16	L2	267	11	YFSSNDNSINI		12520
HPV16	L2	393	8	YIPANTTI		12521
HPV16	L2	393	10	YIPANTTIPI		12522
HPV16	L2	447	8	YLHPSYYM		12523
HPV16	L2	447	9	YLIIPSYYML		12524
HPV16	L2	453	10	YMLRKRKRRL		12525
HPV16	L2	437	10	YTHADAGDF		12526
HPV16	L2	437	11	YTHADAGDFY		12527
HPV16	L2	349	9	YTTTSHAAL		12528
HPV16	L2	452	11	YYMLRKRKRRL		12529
HPV16	L2	326	8	YYYDFSTI		12530
HPV18	E1	398	11	AFKSNQCQAKY		12531
HPV18	E1	246	9	AIFGVNPTI		12532
HPV18	E1	22	11	AIVDKKTGDVI		12533
HPV18	E1	546	9	ALDGNPISI		12534
HPV18	E1	325	9	ALYWYRTGI		12535
HPV18	E1	213	10	AMLAVFKDTY		12536
HPV18	E1	526	11	AMLDDATTTCW		12537

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	40	8	ATDTGSDM		12538
HPV18	E1	40	11	ATDTGSDMVDF		12539
HPV18	E1	531	8	ATTCWTY		12540
HPV18	E1	531	9	ATTCWTYF		12541
HPV18	E1	216	9	AVFKDTYGL		12542
HPV18	E1	216	11	AVFKDTYGLSF		12543
HPV18	E1	618	10	CFERTWSRL		12544
HPV18	E1	273	9	CLDCKWGL		12545
HPV18	E1	273	10	CLDCKWGLI		12546
HPV18	E1	273	11	CLDCKWGLLIL		12547
HPV18	E1	311	9	CMLIQPKL		12548
HPV18	E1	240	8	CTDWVTAI		12549
HPV18	E1	240	9	CTDWVTAF		12550
HPV18	E1	196	9	C'TIAQLKDL		12551
HPV18	E1	196	10	C'TIAQLKDLL		12552
HPV18	E1	535	8	CWTFDTY		12553
HPV18	E1	535	9	CWTFDTYM		12554
HPV18	E1	49	9	DFIDTQGF		12555
HPV18	E1	363	8	DLSEMVQW		12556
HPV18	E1	363	10	DLSEMVQWAF		12557
HPV18	E1	381	8	DMAFEYAL		12558
HPV18	E1	381	9	DMAFEYALL		12559
HPV18	E1	637	10	DTEGNPFGTF		12560
HPV18	E1	106	8	DTELSPL		12561
HPV18	E1	106	11	DTELSPLQEI		12562
HPV18	E1	42	9	DTGSDMVDF		12563
HPV18	E1	42	10	DTGSDMVDFI		12564
HPV18	E1	342	9	DTEWQRL		12565
HPV18	E1	342	11	DTEWQRLTI		12566
HPV18	E1	220	10	DTYGLSFTDL		12567
HPV18	E1	540	8	DTYMRNAL		12568
HPV18	E1	445	8	DWRPIVQF		12569
HPV18	E1	445	9	DWRPIVQFL		12570
HPV18	E1	445	11	DWRPIVQFLRY		12571
HPV18	E1	459	9	EFITFLGAL		12572
HPV18	E1	594	8	EFNAPPF		12573
HPV18	E1	610	10	EINDKNWCKF		12574
HPV18	E1	610	11	EINDKNWCKFF		12575
HPV18	E1	62	8	ELETAQAL		12576
HPV18	E1	62	9	ELETAQALF		12577
HPV18	E1	108	9	ELSPRLQEI		12578
HPV18	E1	108	11	ELSPRLQEISL		12579
HPV18	E1	375	8	ELTDESDM		12580
HPV18	E1	375	10	ELTDESDMAF		12581
HPV18	E1	366	11	EMVQWAFDNEL		12582
HPV18	E1	309	11	ETCMLIQPKL		12583

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	104	10	EVDTELSPL		12584
HPV18	E1	74	9	EVHNDQVL		12585
HPV18	E1	338	9	EVMGDTPEW		12586
HPV18	E1	338	10	EVMGDTPEWI		12587
HPV18	E1	345	8	EWIQLTI		12588
HPV18	E1	345	9	EWIQLTII		12589
HPV18	E1	619	9	FFERTWSRL		12590
HPV18	E1	619	11	FFERTWSRLDL		12591
HPV18	E1	50	8	FIDTQGT		12592
HPV18	E1	497	10	FIHFIQGAVI		12593
HPV18	E1	265	10	FILYAHIQCL		12594
HPV18	E1	500	9	FIQGAVISF		12595
HPV18	E1	460	8	FITFLGAL		12596
HPV18	E1	460	11	FITFLGALKSF		12597
HPV18	E1	463	8	FLGALKSF		12598
HPV18	E1	463	9	FLGALKSFL		12599
HPV18	E1	470	11	FLKGTGPKKNCL		12600
HPV18	E1	399	10	FLKSNCQAKY		12601
HPV18	E1	399	11	FLKSNCQAKYL		12602
HPV18	E1	452	9	FLRYQQIEF		12603
HPV18	E1	452	10	FLRYQQIEFI		12604
HPV18	E1	226	8	FTDLVRNF		12605
HPV18	E1	130	8	FTISDSGY		12606
HPV18	E1	508	8	FVNSTSHF		12607
HPV18	E1	508	9	FVNSTSHFW		12608
HPV18	E1	508	10	FVNSTSHFWL		12609
HPV18	E1	257	9	GFKTLIQPF		12610
HPV18	E1	257	10	GFKTLIQPFI		12611
HPV18	E1	257	11	GFKTLIQPFIL		12612
HPV18	E1	356	9	GIDDSNFDL		12613
HPV18	E1	332	9	GISNISEVM		12614
HPV18	E1	223	11	GLSFTDLVRNF		12615
HPV18	E1	494	8	GMSFIIIFI		12616
HPV18	E1	55	9	GTFCQAEI		12617
HPV18	E1	11	8	GTGNGWF		12618
HPV18	E1	11	9	GTGNGWFY		12619
HPV18	E1	473	8	GTPKKNCL		12620
HPV18	E1	473	10	GTPKKNCLVF		12621
HPV18	E1	182	8	GTSDNSNI		12622
HPV18	E1	279	8	GVLILALL		12623
HPV18	E1	279	10	GVLILALLRY		12624
HPV18	E1	249	10	GVNPTIAEGF		12625
HPV18	E1	16	8	GWFYVQAI		12626
HPV18	E1	499	8	HFIQGAVI		12627
HPV18	E1	499	10	HFIQGAVISF		12628
HPV18	E1	270	9	HIQCLDCKW		12629

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	306	8	IIVPETCML		12630
HPV18	E1	306	9	IIVPETCMLI		12631
HPV18	E1	418	10	IIVRAQKRQM		12632
HPV18	E1	247	8	IFGVNPTI		12633
HPV18	E1	352	11	IHQGIDDSNF		12634
HPV18	E1	266	9	IYAHIQCL		12635
HPV18	E1	461	10	ITFLGALKSF		12636
HPV18	E1	461	11	ITFLGALKSFL		12637
HPV18	E1	590	10	ITVFEFNAF		12638
HPV18	E1	23	10	IVDKKTGDI		12639
HPV18	E1	449	10	IVQFLRYQQI		12640
HPV18	E1	439	8	KIDEGGDW		12641
HPV18	E1	439	11	KIDEGGDWRPI		12642
HPV18	E1	647	11	KLRAGQNRPL		12643
HPV18	E1	318	9	KLRSSVAAL		12644
HPV18	E1	318	10	KLRSSVAALY		12645
HPV18	E1	259	11	KLRSSVAALYW		12646
HPV18	E1	259	8	KTLIQPFI		12647
HPV18	E1	259	9	KTLIQPFIL		12648
HPV18	E1	259	10	KTLIQPFILY		12649
HPV18	E1	237	11	KTTCTDWWTAI		12650
HPV18	E1	206	9	KVNNKQGAM		12651
HPV18	E1	206	10	KVNNKQGAML		12652
HPV18	E1	277	9	KWGVLLAL		12653
HPV18	E1	277	10	KWGVLLLALL		12654
HPV18	E1	407	9	KYLKDCATM		12655
HPV18	E1	129	9	LFTISDSGY		12656
HPV18	E1	281	8	LILALLRY		12657
HPV18	E1	561	9	LIQLKCPPI		12658
HPV18	E1	561	10	LIQLKCPPII		12659
HPV18	E1	561	11	LIQLKCPPIII		12660
HPV18	E1	261	8	LIQPFILY		12661
HPV18	E1	261	11	LIQPFILYAH		12662
HPV18	E1	304	9	LIQPFILYAH		12663
HPV18	E1	304	10	LIQPFILYAH		12664
HPV18	E1	304	11	LIQPFILYAH		12665
HPV18	E1	204	11	LLKVNKQGAM		12666
HPV18	E1	285	11	LLRYKCGKSRL		12667
HPV18	E1	376	9	LTDESMAF		12668
HPV18	E1	376	11	LTDESMAFEY		12669
HPV18	E1	520	8	LTDTKVAM		12670
HPV18	E1	520	9	LTDTKVAML		12671
HPV18	E1	350	8	LTIIQHGI		12672
HPV18	E1	295	10	LTVAKGLSTL		12673
HPV18	E1	295	11	LTVAKGLSTLL		12674
HPV18	E1	267	8	LYAHIIQCL		12675

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	326	8	LYWYRTGI		12676
HPV18	E1	326	11	LYWYRTGISNI		12677
HPV18	E1	214	9	MLAVFKDTY		12678
HPV18	E1	214	11	MLAVFKDTYGL		12679
HPV18	E1	527	10	MLDDATTTCW		12680
HPV18	E1	312	8	MLIQPKL		12681
HPV18	E1	47	11	MVDFDTQGTG		12682
HPV18	E1	367	10	MVQWAFDNEL		12683
HPV18	E1	361	10	NFDLSEMVQW		12684
HPV18	E1	188	11	NIENVNPQCTI		12685
HPV18	E1	574	10	NIHPAKDNRW		12686
HPV18	E1	428	8	NMSQWIRF		12687
HPV18	E1	487	9	NTGKSYFGM		12688
HPV18	E1	487	11	NTGKSYFGMSF		12689
HPV18	E1	158	11	NVCSGGSTEAI		12690
HPV18	E1	191	8	NVNPQCTI		12691
HPV18	E1	191	11	NVNPQCTIAQL		12692
HPV18	E1	615	10	NWKCFERTW		12693
HPV18	E1	600	10	PFDKNGNPVY		12694
HPV18	E1	264	8	PFILYAIH		12695
HPV18	E1	264	11	PFILYAHIQCL		12696
HPV18	E1	568	8	PILLTNI		12697
HPV18	E1	551	11	PISDRKHKPL		12698
HPV18	E1	448	8	PIVQFLRY		12699
HPV18	E1	448	11	PIVQFLRYQQI		12700
HPV18	E1	560	10	PLQLKCPPI		12701
HPV18	E1	560	11	PLQLKCPPII		12702
HPV18	E1	519	9	PLTDTKVAM		12703
HPV18	E1	519	10	PLTDTKVAML		12704
HPV18	E1	252	10	PTIAEGFKTL		12705
HPV18	E1	252	11	PTIAEGFKTLI		12706
HPV18	E1	607	10	PVYEINDKNW		12707
HPV18	E1	584	10	PYLESRITVF		12708
HPV18	E1	451	8	QFLRYQQI		12709
HPV18	E1	451	10	QFLRYQQIEF		12710
HPV18	E1	451	11	QFLRYQQIEFI		12711
HPV18	E1	457	8	QIEFITFL		12712
HPV18	E1	457	11	QIEFITFLGAL		12713
HPV18	E1	563	8	QLKCPPII		12714
HPV18	E1	563	9	QLKCPPIII		12715
HPV18	E1	426	8	QMNMSQWI		12716
HPV18	E1	426	10	QMNMSQWIRF		12717
HPV18	E1	80	10	QVLHVLKRRKF		12718
HPV18	E1	369	8	QWAFDNEL		12719
HPV18	E1	431	10	QWIRFRCSKI		12720
HPV18	E1	589	11	RITVFEPPNAF		12721

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	102	8	RLEVDTEL		12722
HPV18	E1	128	10	RLFTISDSGY		12723
HPV18	E1	349	9	RLTIHQHGI		12724
HPV18	E1	294	8	RLTVAKGL		12725
HPV18	E1	294	11	RLTVAKGLSTL		12726
HPV18	E1	330	11	RTGISNISEVM		12727
HPV18	E1	622	8	RTWSRLDL		12728
HPV18	E1	582	9	RWPYLEMRI		12729
HPV18	E1	287	9	RYKCGKSRL		12730
HPV18	E1	454	8	RYQQIEFI		12731
HPV18	E1	454	10	RYQQIEFITF		12732
HPV18	E1	454	11	RYQQIEFITFL		12733
HPV18	E1	496	11	SFIHQGAVI		12734
HPV18	E1	225	9	SFTDLVRNF		12735
HPV18	E1	507	9	SFVNSTSHF		12736
HPV18	E1	507	10	SFVNSTSHFW		12737
HPV18	E1	507	11	SFVNSTSHFWL		12738
HPV18	E1	553	9	SIDRKHKPL		12739
HPV18	E1	553	10	SIDRKHKPLI		12740
HPV18	E1	93	11	STENSPGLERL		12741
HPV18	E1	302	11	STLLHVPETCM		12742
HPV18	E1	511	10	STSHFWLEPL		12743
HPV18	E1	322	8	SVAALYWY		12744
HPV18	E1	179	11	SVDGTSDNSNI		12745
HPV18	E1	491	8	SYFGMSFI		12746
HPV18	E1	491	10	SYFGMSFIHF		12747
HPV18	E1	491	11	SYFGMSFIHFI		12748
HPV18	E1	56	8	TFCEQAEI		12749
HPV18	E1	462	9	TFLGALKSF		12750
HPV18	E1	462	10	TFLGALKSFL		12751
HPV18	E1	253	9	TIAEGFKTL		12752
HPV18	E1	253	10	TIAEGFKTLI		12753
HPV18	E1	197	8	TIAQLKDL		12754
HPV18	E1	197	9	TIAQLKDLL		12755
HPV18	E1	260	8	TLIQPFIL		12756
HPV18	E1	260	9	TLIQPFILY		12757
HPV18	E1	303	10	TLLHVPETCM		12758
HPV18	E1	303	11	TLLHVPETCML		12759
HPV18	E1	238	10	TTCTDWVTAI		12760
HPV18	E1	238	11	TTCTDWVTAIF		12761
HPV18	E1	533	10	TTTCWTYFDTY		12762
HPV18	E1	533	11	TTTCWTYFDTYM		12763
HPV18	E1	532	8	TTTCWTYF		12764
HPV18	E1	532	11	TTTCWTYFDTY		12765
HPV18	E1	296	9	TVAKGLSTL		12766
HPV18	E1	296	10	TVAKGLSTLL		12767

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	591	9	TVFEFPNAF		12768
HPV18	E1	591	11	TVFEFPNAFPF		12769
HPV18	E1	537	11	TYFDTYMRNAL		12770
HPV18	E1	221	9	TYGLSFTDL		12771
HPV18	E1	592	8	VFEFPNAF		12772
HPV18	E1	592	10	VFEFPNAFPF		12773
HPV18	E1	217	8	VFKDTYGL		12774
HPV18	E1	217	10	VFKDTYGLSF		12775
HPV18	E1	505	11	VISFVNSTSHF		12776
HPV18	E1	81	9	VLHVLKRKF		12777
HPV18	E1	280	9	VLILALLRY		12778
HPV18	E1	339	8	VMGDTPEW		12779
HPV18	E1	339	9	VMGDTPEWI		12780
HPV18	E1	244	11	VTAFGVNPTI		12781
HPV18	E1	608	9	VYEINDKNW		12782
HPV18	E1	346	8	WIQLTII		12783
HPV18	E1	432	9	WIRFRCSKI		12784
HPV18	E1	536	8	WTFDITYM		12785
HPV18	E1	328	9	WYRTGISNI		12786
HPV18	E1	538	10	YFDTYMRNAL		12787
HPV18	E1	492	9	YFGMSFIHF		12788
HPV18	E1	492	10	YFGMSFIHFI		12789
HPV18	E1	585	9	YLESRTVF		12790
HPV18	E1	585	11	YLESRTVFEF		12791
HPV18	E1	408	8	YKDCATM		12792
HPV18	E1	542	11	YMRNALDGNPI		12793
HPV18	E1	327	10	YWYRTGISNI		12794
HPV18	E2	76	8	AIELQMAL		12795
HPV18	E2		11	AIELQMALQGL		12796
HPV18	E2	45	11	AIFFAAREHGI		12797
HPV18	E2	351	8	AIPDSVQI		12798
HPV18	E2	351	9	AIPDSVQIL		12799
HPV18	E2	82	10	ALQGLAQSRV		12800
HPV18	E2	154	9	ATCVSHRGL		12801
HPV18	E2	154	10	ATCVSHRGLY		12802
HPV18	E2	154	11	ATCVSHRGLYY		12803
HPV18	E2	214	8	ATQLVKQL		12804
HPV18	E2	246	9	ATRPGHGCL		12805
HPV18	E2	137	8	AWDSVYYM		12806
HPV18	E2	132	11	CMITYVAWDSVY		12807
HPV18	E2	14	10	CVQDKIIDIY		12808
HPV18	E2	156	8	CVSHRGLY		12809
HPV18	E2	156	9	CVSHRGLYY		12810
HPV18	E2	29	8	DIDSQIQY		12811
HPV18	E2	29	9	DIDSQIQYW		12812
HPV18	E2	29	11	DIDSQIQYWQL		12813

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E2	315	8	DISSTWHW		12814
HPV18	E2	210	8	DTVSATQL		12815
HPV18	E2	95	11	DWTLQDTCEEL		12816
HPV18	E2	175	9	EKSECEKY		12817
HPV18	E2	78	9	ELQMALQGL		12818
HPV18	E2	104	11	ELWNTPTCHF		12819
HPV18	E2	340	8	ETQRTKFL		12820
HPV18	E2	190	9	EVHFGNNVI		12821
HPV18	E2	47	9	FFAAREIHGI		12822
HPV18	E2	161	9	GLYYVKEGY		12823
HPV18	E2	168	9	GYNTFYIEF		12824
HPV18	E2	291	9	HLKGDRNSL		12825
HPV18	E2	22	9	HYENDSKDI		12826
HPV18	E2	312	9	HYRDISSTW		12827
HPV18	E2	312	11	HYRDISSTWHW		12828
HPV18	E2	46	10	IFFAAREHGI		12829
HPV18	E2	289	11	IIHLKGDRNSL		12830
HPV18	E2	358	8	ILVGYMTM		12831
HPV18	E2	345	8	KFLNTVAI		12832
HPV18	E2	280	10	KLCSGNTTPI		12833
HPV18	E2	280	11	KLCSGNTTPII		12834
HPV18	E2	152	11	KTATCVSHRGL		12835
HPV18	E2	329	9	KTGILTVTY		12836
HPV18	E2	182	8	KYGNITGTW		12837
HPV18	E2	39	8	LIRWENAI		12838
HPV18	E2	39	9	LIRWENAIIF		12839
HPV18	E2	39	10	LIRWENAIFF		12840
HPV18	E2	105	10	LWNTPTTICF		12841
HPV18	E2	162	8	LYYVKEGY		12842
HPV18	E2	133	11	LYYVKEGYNTF		12843
HPV18	E2	133	10	MTYVAWDSVY		12844
HPV18	E2	133	11	MTYVAWDSVYY		12845
HPV18	E2	67	11	NISKSAHKAI		12846
HPV18	E2	107	8	NTEPTHCF		12847
HPV18	E2	185	9	NTGTWEVIIF		12848
HPV18	E2	285	8	NTTPIHL		12849
HPV18	E2	348	11	NTVAIPDSVQI		12850
HPV18	E2	196	9	NVIDCNDMS		12851
HPV18	E2	272	10	PTGNNKRRKL		12852
HPV18	E2	357	9	QILVGYMTM		12853
HPV18	E2	33	8	QIQYWQLI		12854
HPV18	E2	33	10	QIQYWQLIRW		12855
HPV18	E2	38	9	QLIRWENAI		12856
HPV18	E2	38	10	QLIRWENAIFF		12857
HPV18	E2	38	11	QLIRWENAIFF		12858
HPV18	E2	220	9	QLQHTPSPY		12859

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E2	56	11	QTLNHQVVPAY		12860
HPV18	E2	2	11	QTPKETLSERL		12861
HPV18	E2	61	8	QVVPAYNI		12862
HPV18	E2	35	8	QYWQLIRW		12863
HPV18	E2	305	9	RLRKIISDHY		12864
HPV18	E2	11	9	RLSCVQDKI		12865
HPV18	E2	11	10	RLSCVQDKII		12866
HPV18	E2	343	10	RTKFLNTVAI		12867
HPV18	E2	41	8	RWENAIFF		12868
HPV18	E2	90	9	RYKTEDWTL		12869
HPV18	E2	303	11	RYRLRKIISDHY		12870
HPV18	E2	298	9	SLKCLRYRL		12871
HPV18	E2	230	11	STVSVGTAKTY		12872
HPV18	E2	233	8	SVGTAKTY		12873
HPV18	E2	355	8	SVQILVGY		12874
HPV18	E2	355	9	SVQILVGYM		12875
HPV18	E2	355	11	SVQILVGYMTM		12876
HPV18	E2	140	11	SVYMTDAGTW		12877
HPV18	E2	57	10	TLNHQVVPAY		12878
HPV18	E2	97	9	TLQDTCEEL		12879
HPV18	E2	97	10	TLQDTCEELW		12880
HPV18	E2	349	10	TVAIPDSVQI		12881
HPV18	E2	349	11	TVAIPDSVQIL		12882
HPV18	E2	211	11	TVSATQLVKQL		12883
HPV18	E2	231	10	TVSVGTAKTY		12884
HPV18	E2	188	11	TWEVHFGNNVI		12885
HPV18	E2	336	11	TYISETQRTKF		12886
HPV18	E2	134	9	TYVAWDSVY		12887
HPV18	E2	134	10	TYVAWDSVYY		12888
HPV18	E2	134	11	TYVAWDSVYYM		12889
HPV18	E2	197	8	VIDCNDMS		12890
HPV18	E2	123	11	VYFDGNKDNCM		12891
HPV18	E2	141	10	VYYMTDAGTW		12892
HPV18	E2	322	11	WTGAGNEKTGI		12893
HPV18	E2	96	10	WTLQDTCEEL		12894
HPV18	E2	96	11	WTLQDTCEELW		12895
HPV18	E2	124	10	YFDGNKDNCM		12896
HPV18	E2	173	11	YIEFKSECEKY		12897
HPV18	E2	143	8	YMTDAGTW		12898
HPV18	E2	135	8	YVAWDSVY		12899
HPV18	E2	135	9	YVAWDSVYY		12900
HPV18	E2	135	10	YVAWDSVYYM		12901
HPV18	E2	164	9	YVKEGYNTF		12902
HPV18	E2	164	10	YVKEGYNTFY		12903
HPV18	E2	164	11	YVKEGYNTFYI		12904
HPV18	E2	36	11	YWQLIRWENAI		12905

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E2	142	9	YYMTDAGTW		12906
HPV18	E2	163	10	YYVKEGYNTF		12907
HPV18	E2	163	11	YYVKEGYNTFY		12908
HPV18	E5	49	9	AFTVYVFCF		12909
HPV18	E5	49	10	AFTVYVFCFL		12910
HPV18	E5	49	11	AFTVYVFCFLL		12911
HPV18	E5	47	9	ATAFTVYVF		12912
HPV18	E5	47	11	ATAFTVYVFCF		12913
HPV18	E5	32	8	AWVLVFFV		12914
HPV18	E5	32	9	AWVLVFFYI		12915
HPV18	E5	30	8	AYAWVLVF		12916
HPV18	E5	30	10	AYAWVLVFFV		12917
HPV18	E5	30	11	AYAWVLVFFYI		12918
HPV18	E5	56	8	CFLPMLL		12919
HPV18	E5	56	9	CFLPMLLL		12920
HPV18	E5	56	11	CFLPMLLLHI		12921
HPV18	E5	27	9	CMCAYAWVL		12922
HPV18	E5	27	11	CMCAYAWVLVF		12923
HPV18	E5	13	10	CMYVCCHVPL		12924
HPV18	E5	13	11	CMYVCCHVPLL		12925
HPV18	E5	6	9	FLFCFCVCM		12926
HPV18	E5	6	10	FLFCFCVCMY		12927
HPV18	E5	57	8	FLPMLL		12928
HPV18	E5	57	10	FLPMLLLHI		12929
HPV18	E5	50	8	FTVYVFCF		12930
HPV18	E5	50	9	FTVYVFCFL		12931
HPV18	E5	50	10	FTVYVFCFLL		12932
HPV18	E5	65	8	HHAILSL		12933
HPV18	E5	19	10	HVPLLPSCVM		12934
HPV18	E5	5	10	IFLFCFCVCM		12935
HPV18	E5	5	11	IFLFCFCVCMY		12936
HPV18	E5	43	8	ITSPATAF		12937
HPV18	E5	43	11	ITSPATAFTVY		12938
HPV18	E5	40	11	IVVITSPATAF		12939
HPV18	E5	7	8	LFCCFCVCM		12940
HPV18	E5	7	9	LFCCFCVCMY		12941
HPV18	E5	4	11	LIFLFCFCVCM		12942
HPV18	E5	63	8	LLHHAIL		12943
HPV18	E5	63	10	LLHHAILSL		12944
HPV18	E5	62	8	LLHHIAI		12945
HPV18	E5	62	9	LLHHIAIL		12946
HPV18	E5	62	11	LLHHIAILSL		12947
HPV18	E5	58	9	LLPMLLLHI		12948
HPV18	E5	22	10	LLPSVCMCAY		12949
HPV18	E5	35	9	LVFVYIVVI		12950
HPV18	E5	61	9	MLLHHIAI		12951

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E5	61	10	MLLLHHAIL		12952
HPV18	E5	1	8	MLSLFLF		12953
HPV18	E5	1	10	MLSLFLFCF		12954
HPV18	E5	14	9	MYVCCHVPL		12955
HPV18	E5	14	10	MYVCCHVPLL		12956
HPV18	E5	21	8	PLLPSCVM		12957
HPV18	E5	21	11	PLLPSCVMCA		12958
HPV18	E5	60	10	PMLLIHHAI		12959
HPV18	E5	60	11	PMLLIHHAIL		12960
HPV18	E5	3	8	SLFLFCF		12961
HPV18	E5	25	9	SVCMCAAYAW		12962
HPV18	E5	25	11	SVCMCAAYAWVL		12963
HPV18	E5	51	8	TVVVFCL		12964
HPV18	E5	51	9	TVVVFCLL		12965
HPV18	E5	51	11	TVVVFCLLPM		12966
HPV18	E5	54	8	VFCFLPM		12967
HPV18	E5	54	9	VFCFLPML		12968
HPV18	E5	54	10	VFCFLPMLL		12969
HPV18	E5	54	11	VFCFLPMLLL		12970
HPV18	E5	36	8	VFYVYVI		12971
HPV18	E5	42	9	VITSPATAF		12972
HPV18	E5	34	10	VLVYVYVVI		12973
HPV18	E5	41	10	VVITSPATAF		12974
HPV18	E5	52	8	VYVFCFL		12975
HPV18	E5	52	10	VYVFCFLPM		12976
HPV18	E5	52	11	VYVFCFLPML		12977
HPV18	E5	33	8	WVLVYVYI		12978
HPV18	E5	33	11	WVLVYVYVVI		12979
HPV18	E5	15	8	YVCHVPL		12980
HPV18	E5	15	9	YVCHVPLL		12981
HPV18	E5	53	9	YVFCFLPM		12982
HPV18	E5	53	10	YVFCFLPML		12983
HPV18	E5	53	11	YVFCFLPMLL		12984
HPV18	E6	48	9	AFKDLFVY		12985
HPV18	E6	68	8	CIDFYSRI		12986
HPV18	E6	68	11	CIDFYSRIREL		12987
HPV18	E6	105	8	CLRCQKPL		12988
HPV18	E6	18	8	CTELNTSL		12989
HPV18	E6	18	11	CTELNTSLQDI		12990
HPV18	E6	32	8	CVYCKTVL		12991
HPV18	E6	32	10	CVYCKTVLEL		12992
HPV18	E6	70	9	DFYSRIREL		12993
HPV18	E6	27	8	DEITCVY		12994
HPV18	E6	16	10	DLCTELNTSL		12995
HPV18	E6	51	10	DLFVVYRDSI		12996
HPV18	E6	88	11	DTLEKLTNTGL		12997

Genetic Sequence
Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E6	46	8	EFAFKDLF		12998
HPV18	E6	46	11	EFAFKDLFVY		12999
HPV18	E6	29	11	EITCVYCKTVL		13000
HPV18	E6	20	9	ELNTSLQDI		13001
HPV18	E6	20	11	ELNTSLQDIEI		13002
HPV18	E6	77	10	ELRHYSDSVY		13003
HPV18	E6	40	8	ELTEVFEF		13004
HPV18	E6	40	10	ELTEVFEFAF		13005
HPV18	E6	43	10	EVFEFAFKDL		13006
HPV18	E6	43	11	EVFEFAFKDLF		13007
HPV18	E6	53	8	FVYRDSI		13008
HPV18	E6	71	8	FYSKREL	0.0260	13009
HPV18	E6	71	11	FYSRIELRHY	0.0052	13010
HPV18	E6	97	10	GLYNLLIRCL		13011
HPV18	E6	120	8	HLNEKRRF		13012
HPV18	E6	120	11	HLNEKRRFHNI		13013
HPV18	E6	80	11	HYSDSVYGDTL	0.0069	13014
HPV18	E6	30	10	ITCVYCKTVL		13015
HPV18	E6	13	9	KLPLDCTEL	0.0013	13016
HPV18	E6	117	11	KLRHLNEKRRF		13017
HPV18	E6	92	8	KLNTITGLY		13018
HPV18	E6	92	10	KLNTITGLYNL	0.0001	13019
HPV18	E6	92	11	KLNTITGLYNLL		13020
HPV18	E6	36	10	KTVLELTVF		13021
HPV18	E6	52	9	LFVYRDSI		13022
HPV18	E6	102	11	LIRCLRCQKPL		13023
HPV18	E6	41	9	LTEVFEFAF		13024
HPV18	E6	93	9	LTNTGLYNL		13025
HPV18	E6	93	10	LTNTGLYNLL		13026
HPV18	E6	93	11	LTNTGLYNLLI		13027
HPV18	E6	98	9	LYNLLIRCL		13028
HPV18	E6	95	8	NTGLYNLL	0.0001	13029
HPV18	E6	95	9	NTGLYNLLI		13030
HPV18	E6	22	9	NTSLQDIEI		13031
HPV18	E6	111	8	PLNPAEKL		13032
HPV18	E6	111	11	PLNPAEKLRIIL		13033
HPV18	E6	7	8	PTRRPYKL		13034
HPV18	E6	7	11	PTRRPYKLDPDL		13035
HPV18	E6	11	11	PYKLPDICTEL		13036
HPV18	E6	3	10	RFEDPTRRPY	0.0064	13037
HPV18	E6	126	9	RHNIAGHY		13038
HPV18	E6	74	8	RIRELRHY		13039
HPV18	E6	59	11	SIPIAACIKCI		13040
HPV18	E6	24	11	SLQDIEITCVY		13041
HPV18	E6	84	10	SVYGDITLEKL		13042
HPV18	E6	89	10	TLEKLTNTGL		13043

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E6	89	11	TLEKLTNTGLY		13044
HPV18	E6	37	9	TVLELTVF	0.0001	13045
HPV18	E6	37	11	TVLELTVFEF		13046
HPV18	E6	44	9	VFEFAFKDL		13047
HPV18	E6	44	10	VFEFAFKDLF	0.0360	13048
HPV18	E6	38	8	VLELTVF		13049
HPV18	E6	38	10	VLELTVFEF		13050
HPV18	E6	33	9	VYCKTVLEL	0.0220	13051
HPV18	E6	85	9	VYGDITLEKL	0.0150	13052
HPV18	E7	85	10	AFQQLFNTL		13053
HPV18	E7	6	8	ATLQDIVL		13054
HPV18	E7	6	10	ATLQDIVLHL		13055
HPV18	E7	63	10	CMCKCEARI		13056
HPV18	E7	24	8	DLICHEQL	0.0001	13057
HPV18	E7	82	8	DLRAFOQL		13058
HPV18	E7	82	9	DLRAFOQLF		13059
HPV18	E7	82	10	DLRAFOQLFL		13060
HPV18	E7	40	10	EIDGVNHQHL		13061
HPV18	E7	90	11	FLNTLSFVCPW		13062
HPV18	E7	14	8	HLEPQNEI		13063
HPV18	E7	11	11	IVLHLEPQNEI		13064
HPV18	E7	73	11	KLVVESADDDL		13065
HPV18	E7	89	8	LFLNTLSF		13066
HPV18	E7	74	10	LVVESADDDL		13067
HPV18	E7	92	9	NTLSFVCPW		13068
HPV18	E7	22	10	PVDLLCHEQL		13069
HPV18	E7	88	9	QLFLNTLSF		13070
HPV18	E7	7	9	TLQDIVLHL		13071
HPV18	E7	93	8	TLSFVCPW		13072
HPV18	E7	12	10	VLHLEPQNEI		13073
HPV18	E7	75	9	VVESADDDL		13074
HPV18	L1	63	11	ALWRPSDNTVY		13075
HPV18	L1	128	11	AYQYRFRVQL		13076
HPV18	L1	218	9	CILGCAPAI		13077
HPV18	L1	310	8	CLRREQLF		13078
HPV18	L1	2	8	CLYTRVLI		13079
HPV18	L1	2	9	CLYTRVLIL		13080
HPV18	L1	2	11	CLYTRVLILHY		13081
HPV18	L1	441	10	CTTLTADVM		13082
HPV18	L1	350	11	CVYSPSPSGSI		13083
HPV18	L1	284	9	DICQSICKY		13084
HPV18	L1	122	8	DIPKVSAY		13085
HPV18	L1	122	10	DIPKVSAYQY		13086
HPV18	L1	520	11	DLDOYPLGRKF		13087
HPV18	L1	512	8	DLKEKFSL		13088
HPV18	L1	512	10	DLKEKFSLDL		13089

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L1	433	8	DLQFIFQL		13090
HPV18	L1	433	11	DLQFIFQLCTI		13091
HPV18	L1	260	10	DMVDTGYGAM		13092
HPV18	L1	263	9	DTGYGAMDF		13093
HPV18	L1	276	8	DTKCEVPL		13094
HPV18	L1	276	10	DTKCEVPLDI		13095
HPV18	L1	396	8	DTTPSTNL		13096
HPV18	L1	396	10	DTTPSTNLTI		13097
HPV18	L1	330	8	DTVPSLY		13098
HPV18	L1	330	9	DTVPSLYI		13099
HPV18	L1	478	11	DTYRFVQSVAI		13100
HPV18	L1	448	9	DVMSYIHSM		13101
HPV18	L1	203	10	DVRDNVSDY		13102
HPV18	L1	211	9	DYKQTQLCI		13103
HPV18	L1	211	10	DYKQTQLCIL		13104
HPV18	L1	294	10	DYLQMSADPY		13105
HPV18	L1	87	8	DYVTPTSI		13106
HPV18	L1	87	9	DYVTPTSIF		13107
HPV18	L1	87	10	DYVTPTSIFY		13108
HPV18	L1	167	8	EIGRGQPL		13109
HPV18	L1	280	10	EVPLDICQSI		13110
HPV18	L1	431	8	EYDLQFIF		13111
HPV18	L1	431	10	EYDLQFIFQL		13112
HPV18	L1	308	9	FFCLRREQL		13113
HPV18	L1	308	10	FFCLRREQLF		13114
HPV18	L1	436	8	FIFQLCTI		13115
HPV18	L1	436	10	FIFQLCTITL		13116
HPV18	L1	49	8	FLRNVNVF		13117
HPV18	L1	49	10	FLRNVNVFPI		13118
HPV18	L1	49	11	FLRNVNVFPIF		13119
HPV18	L1	321	8	FWNRAGTM		13120
HPV18	L1	508	10	FWNVDLKEKF		13121
HPV18	L1	95	9	FYHAGSSRL		13122
HPV18	L1	95	10	FYHAGSSRLI		13123
HPV18	L1	145	8	GLPDTSIY		13124
HPV18	L1	535	8	GLRRKPTI		13125
HPV18	L1	177	8	GLSGHPFY		13126
HPV18	L1	177	11	GLSGHPFYNNKL		13127
HPV18	L1	342	11	GMPASPGSCVY		13128
HPV18	L1	233	9	GTACKSRPL		13129
HPV18	L1	326	11	GTMGDTVPQSL		13130
HPV18	L1	383	8	GVCWHNQL		13131
HPV18	L1	383	9	GVCWHNQLF		13132
HPV18	L1	165	10	GVEIGRGQPL		13133
HPV18	L1	175	9	GVGLSGHPF		13134
HPV18	L1	175	10	GVGLSGHPFY		13135

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L1	467	10	GVPPPTTSL		13136
HPV18	L1	265	10	GYGAMDFSTL		13137
HPV18	L1	320	9	HFWRAGTM		13138
HPV18	L1	38	8	HIICGHY		13139
HPV18	L1	38	9	HIICGHYI		13140
HPV18	L1	38	10	HIICGHYII		13141
HPV18	L1	38	11	HIICGHYIIL		13142
HPV18	L1	13	9	HLLPLYGPL		13143
HPV18	L1	13	10	HLLPLYGPLY		13144
HPV18	L1	428	9	HVEEYDLQF		13145
HPV18	L1	428	10	HVEEYDLQFI		13146
HPV18	L1	428	11	HVEEYDLQFIF		13147
HPV18	L1	11	8	HYHLLPLY		13148
HPV18	L1	11	11	HYHLLPLYGPL		13149
HPV18	L1	58	8	IFLQMALW		13150
HPV18	L1	437	9	IFQLCTITL		13151
HPV18	L1	94	10	IFYHAGSSRL		13152
HPV18	L1	94	11	IFYHAGSSRLI		13153
HPV18	L1	40	8	IICGHYII		13154
HPV18	L1	40	9	IICGHYIIL		13155
HPV18	L1	40	10	IICGHYIILF		13156
HPV18	L1	40	11	IICGHYIILFL		13157
HPV18	L1	39	8	IICGHYI		13158
HPV18	L1	39	9	IICGHYII		13159
HPV18	L1	39	10	IICGHYIIL		13160
HPV18	L1	39	11	IICGHYIILF		13161
HPV18	L1	46	11	IILFLRNVNVF		13162
HPV18	L1	47	10	IILFLRNVNVF		13163
HPV18	L1	219	8	ILGCAPAI		13164
HPV18	L1	9	9	ILHYHLLPL		13165
HPV18	L1	32	10	ILHYHLLPLY		13166
HPV18	L1	32	8	ILVYMVHI		13167
HPV18	L1	32	9	ILVYMVHII		13168
HPV18	L1	32	10	ILVYMVHIII		13169
HPV18	L1	443	8	ITLTADVM		13170
HPV18	L1	443	10	ITLTADVMSY		13171
HPV18	L1	443	11	ITLTADVMSYI		13172
HPV18	L1	360	8	IVTSDSQL		13173
HPV18	L1	360	9	IVTSDSQLF		13174
HPV18	L1	151	9	IYNPETQRL		13175
HPV18	L1	151	11	IYNPETQRLVW		13176
HPV18	L1	143	9	KFGLPDTSI		13177
HPV18	L1	143	10	KFGLPDTSIY		13178
HPV18	L1	529	8	KFLVQAGL		13179
HPV18	L1	516	9	KFSLDLDDQY		13180
HPV18	L1	516	11	KFSLDLDDQYPL		13181

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L1	507	11	KFWNVDLKEKF		13182
HPV18	L1	505	9	KLKFWNVDL		13183
HPV18	L1	125	10	KVSAYQYRVF		13184
HPV18	L1	291	8	KYPDYLQM		13185
HPV18	L1	48	9	LFLRNWVVF		13186
HPV18	L1	48	11	LFLRNWVFPF		13187
HPV18	L1	367	8	LFNKPWYL		13188
HPV18	L1	8	8	LILHYHLL		13189
HPV18	L1	8	10	LILHYHLLPL		13190
HPV18	L1	8	11	LILHYHLLPLY		13191
HPV18	L1	14	8	LLPLYGPL		13192
HPV18	L1	14	9	LLPLYGPLY		13193
HPV18	L1	103	8	LLTVGNPY		13194
HPV18	L1	103	9	LLTVGNPYF		13195
HPV18	L1	445	8	LTADVMSY		13196
HPV18	L1	445	9	LTADVMSYI		13197
HPV18	L1	104	8	LTVGNPYF		13198
HPV18	L1	159	10	LVWACAGVEI		13199
HPV18	L1	33	8	LVYMVHII		13200
HPV18	L1	33	9	LVYMVHIII		13201
HPV18	L1	64	10	LWRPSDNTVY		13202
HPV18	L1	64	11	LWRPSDNTVYL		13203
HPV18	L1	17	11	LYGPLYHPRPL		13204
HPV18	L1	21	9	LYHPRPLPL		13205
HPV18	L1	336	8	LYIKGTGM		13206
HPV18	L1	3	8	LYTRVLIL		13207
HPV18	L1	3	10	LYTRVLILHY		13208
HPV18	L1	307	10	MFCLRREQL		13209
HPV18	L1	307	11	MFCLRREQLF		13210
HPV18	L1	261	9	MVDTGYGAM		13211
HPV18	L1	261	11	MVDTGYGAMDF		13212
HPV18	L1	36	10	MVHIICGHY		13213
HPV18	L1	36	11	MVHIICGHI		13214
HPV18	L1	84	11	NTDDYVTPTSI		13215
HPV18	L1	253	9	NTLEDGDM		13216
HPV18	L1	510	8	NVDLKEKF		13217
HPV18	L1	510	10	NVDLKEKFSL		13218
HPV18	L1	54	9	NVFIPLQM		13219
HPV18	L1	54	11	NVFIPLQMAL		13220
HPV18	L1	52	8	NVNVFPIF		13221
HPV18	L1	52	9	NVNVFPIFL		13222
HPV18	L1	52	11	NVNVFIPLQM		13223
HPV18	L1	207	11	NVSDYKQTQL		13224
HPV18	L1	57	8	PIFLQMAL		13225
HPV18	L1	57	9	PIFLQMALW		13226
HPV18	L1	282	8	PLDICQSI		13227

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L1	282	11	PLDICQSICKY		13228
HPV18	L1	248	9	PLELKNTVL		13229
HPV18	L1	173	11	PLGVGLSGHPF		13230
HPV18	L1	28	8	PLHSILVY		13231
HPV18	L1	28	9	PLHSILVYM		13232
HPV18	L1	26	8	PLPLHSIL		13233
HPV18	L1	26	10	PLPLHSILVY		13234
HPV18	L1	26	11	PLPLHSILVYM		13235
HPV18	L1	240	10	PLSQGDCPPL		13236
HPV18	L1	20	8	PLYHPRPL		13237
HPV18	L1	20	10	PLYHPRPLPL		13238
HPV18	L1	472	9	PTTSLVDIY		13239
HPV18	L1	472	11	PTTSLVDIYRF		13240
HPV18	L1	412	11	PVPGQYDATKF		13241
HPV18	L1	502	8	PYDKLKFW		13242
HPV18	L1	302	8	PYGDSMFF		13243
HPV18	L1	302	10	PYGDSMFFCL		13244
HPV18	L1	435	9	QFIFQLCTI		13245
HPV18	L1	435	11	QFIFQLCTITL		13246
HPV18	L1	216	11	QLCILGCAPAI		13247
HPV18	L1	315	8	QLFARHFW		13248
HPV18	L1	366	8	QLFNKPYW		13249
HPV18	L1	366	9	QLFNKPYWL		13250
HPV18	L1	137	8	QLPDPNKF		13251
HPV18	L1	137	10	QLPDPNKFGL		13252
HPV18	L1	297	11	QMSADPYGDSM		13253
HPV18	L1	416	10	QYDATKFKQY		13254
HPV18	L1	523	8	QYPLGRKF		13255
HPV18	L1	523	9	QYPLGRKFL		13256
HPV18	L1	130	9	QYRVFRVQL		13257
HPV18	L1	424	9	QYSRHVEEY		13258
HPV18	L1	424	11	QYSRHVEEYDL		13259
HPV18	L1	481	8	RFVQSVAI		13260
HPV18	L1	102	9	RLLTVGNPY		13261
HPV18	L1	102	10	RLLTVGNPYF		13262
HPV18	L1	158	11	RLVWACAGVEI		13263
HPV18	L1	6	9	RVLIHLYHIL		13264
HPV18	L1	6	10	RVLIHLYHIL		13265
HPV18	L1	135	10	RVQLPDPNKF		13266
HPV18	L1	81	8	RVVNTDDY		13267
HPV18	L1	288	8	SICKYPDY		13268
HPV18	L1	288	9	SICKYPDYL		13269
HPV18	L1	288	11	SICKYPDYLQM		13270
HPV18	L1	93	11	SIFYHAGSSRL		13271
HPV18	L1	459	8	SILEDWNF		13272
HPV18	L1	31	9	SILVYMVIII		13273

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L1	31	10	SILVYVMVHIII		13274
HPV18	L1	31	11	SILVYVMVHIII		13275
HPV18	L1	359	9	SIVTSDSQL		13276
HPV18	L1	359	10	SIVTSDSQLF		13277
HPV18	L1	150	10	SIYNPETQRL		13278
HPV18	L1	518	9	SLDLQYPL		13279
HPV18	L1	475	8	SLVDITYRF		13280
HPV18	L1	335	9	SLYIKGTGM		13281
HPV18	L1	306	11	SMFFCLRREQL		13282
HPV18	L1	455	10	SMNSSILEDW		13283
HPV18	L1	408	10	STQSPVPGQY		13284
HPV18	L1	78	11	SVARVNTDDY		13285
HPV18	L1	209	9	SVDYKQTQL		13286
HPV18	L1	209	11	SVDYKQTQLCI		13287
HPV18	L1	451	10	SYIHSMNSSI		13288
HPV18	L1	451	11	SYIHSMNSSIL		13289
HPV18	L1	442	9	TITLTADVM		13290
HPV18	L1	442	11	TITLTADVMSY		13291
HPV18	L1	273	11	TLQDTKCEVPL		13292
HPV18	L1	444	9	TLTADVMSY		13293
HPV18	L1	444	10	TLTADVMSYI		13294
HPV18	L1	327	10	TMGDTV/QSL		13295
HPV18	L1	327	11	TMGDTV/QSLY		13296
HPV18	L1	397	9	TTPSTNLI		13297
HPV18	L1	473	8	TTSLVDTY		13298
HPV18	L1	473	10	TTSLVDTYRF		13299
HPV18	L1	254	8	TVLEDGDM		13300
HPV18	L1	331	8	TVPQSLYI		13301
HPV18	L1	393	11	TVVDTTPSTNL		13302
HPV18	L1	479	10	TYRFVQSVAI		13303
HPV18	L1	55	8	VFPIFLQM		13304
HPV18	L1	55	10	VFPIFLQMAL		13305
HPV18	L1	55	11	VFPIFLQMALW		13306
HPV18	L1	7	8	VLILHYHL		13307
HPV18	L1	7	9	VLILHYHLL		13308
HPV18	L1	7	11	VLILHYHLLPL		13309
HPV18	L1	449	8	VMSYIHSM		13310
HPV18	L1	89	8	VTPTSIFY		13311
HPV18	L1	361	8	VTSDSQLF		13312
HPV18	L1	394	10	VVDTPSTNL		13313
HPV18	L1	160	9	VWACAGVEI		13314
HPV18	L1	34	8	VYVMVHIII		13315
HPV18	L1	351	10	VYSPSPSGSI		13316
HPV18	L1	452	9	YIHSMNSSI		13317
HPV18	L1	452	10	YIHSMNSSIL		13318
HPV18	L1	295	9	YLQMSADPY		13319

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV18	L1	35	11	YMVHIIICGHY	13320
HPV18	L1	4	9	YTRVLILHY	13321
HPV18	L1	4	11	YTRVLILHYHL	13322
HPV18	L1	88	8	YVTPTSIF	13323
HPV18	L1	88	9	YVTPTSIFY	13324
HPV18	L2	255	9	AFEPVDITL	13325
HPV18	L2	255	11	AFEPVDITLTF	13326
HPV18	L2	370	9	AFKYSPTI	13327
HPV18	L2	161	8	AFSDPSII	13328
HPV18	L2	286	11	ALTSRRGTGRF	13329
HPV18	L2	341	8	ATEDNDF	13330
HPV18	L2	341	10	ATEDNDFDI	13331
HPV18	L2	341	11	ATEDNDFDIY	13332
HPV18	L2	303	11	ATMFRSGTQI	13333
HPV18	L2	275	8	DFMDIIRL	13334
HPV18	L2	278	10	DIIRLHRPAL	13335
HPV18	L2	322	11	DISPIAPSEY	13336
HPV18	L2	404	11	DITLPSTTSVW	13337
HPV18	L2	142	11	DITPSTTSVSI	13338
HPV18	L2	346	10	DLFDIYADDM	13339
HPV18	L2	83	11	DVGPTRPVVI	13340
HPV18	L2	270	8	DVPDSDFM	13341
HPV18	L2	270	10	DVPDSDFMDI	13342
HPV18	L2	270	11	DVPDSDFMDII	13343
HPV18	L2	396	10	DVPVYTGPD	13344
HPV18	L2	30	11	DVVPKVEGTTL	13345
HPV18	L2	240	9	EFLTRPSSL	13346
HPV18	L2	240	10	EFLTRPSSLI	13347
HPV18	L2	331	8	EYIELQPL	13348
HPV18	L2	371	8	FFKYSPTI	13349
HPV18	L2	443	11	FIPKKRKRVPY	13350
HPV18	L2	241	8	FLTRPSSL	13351
HPV18	L2	241	9	FLTRPSSLI	13352
HPV18	L2	241	11	FLTRPSSLITY	13353
HPV18	L2	122	9	FTGTSGFDI	13354
HPV18	L2	157	11	FTNPAFSDPSI	13355
HPV18	L2	306	8	FTRSGTQI	13356
HPV18	L2	319	8	FYHDISPI	13357
HPV18	L2	51	9	GIFLGGLGI	13358
HPV18	L2	429	8	GIHGTIYY	13359
HPV18	L2	429	9	GIHGTIYYL	13360
HPV18	L2	429	10	GIHGTIYYLW	13361
HPV18	L2	64	8	GTGGRTGY	13362
HPV18	L2	64	9	GTGGRTGYI	13363
HPV18	L2	64	11	GTGGRTGYIPL	13364
HPV18	L2	188	8	GTHGYEEI	13365

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L2	188	10	GTIGYEEIPL		13366
HPV18	L2	432	9	GTHYYLWPL		13367
HPV18	L2	432	10	GTHYYLWPLY		13368
HPV18	L2	432	11	GTHYYLWPLY		13369
HPV18	L2	183	10	GTPTSGTHGY		13370
HPV18	L2	310	10	GTQIGARVHF		13371
HPV18	L2	310	11	GTQIGARVHFY		13372
HPV18	L2	37	8	GTLADKI		13373
HPV18	L2	37	9	GTLADKIL		13374
HPV18	L2	37	11	GTLADKILQW		13375
HPV18	L2	134	8	GTTPAVL		13376
HPV18	L2	134	10	GTTPAVLDI		13377
HPV18	L2	292	8	GTVRFSRL		13378
HPV18	L2	191	10	GVEEIPLQTF		13379
HPV18	L2	318	9	HFYHDSPI		13380
HPV18	L2	434	8	HYLWPLY		13381
HPV18	L2	434	9	HYLWPLY		13382
HPV18	L2	434	10	HYLWPLYF		13383
HPV18	L2	434	11	HYLWPLYFY		13384
HPV18	L2	52	8	IFLGGIGI		13385
HPV18	L2	279	9	IIRLHRPAL		13386
HPV18	L2	44	9	ILQWSSLGI		13387
HPV18	L2	44	10	ILQWSSLGIF		13388
HPV18	L2	44	11	ILQWSSLGIFL		13389
HPV18	L2	405	10	ITLPSTTSVW		13390
HPV18	L2	143	10	ITPSSTSVSI		13391
HPV18	L2	249	8	ITYDNPAF		13392
HPV18	L2	43	8	KILQWSSL		13393
HPV18	L2	43	10	KILQWSSLGI		13394
HPV18	L2	43	11	KILQWSSLGIF		13395
HPV18	L2	34	11	KVEGTLADKI		13396
HPV18	L2	347	9	LFDIYADDM		13397
HPV18	L2	248	9	LITYDNPAF		13398
HPV18	L2	242	8	LTRPSSLI		13399
HPV18	L2	242	10	LTRPSSLITY		13400
HPV18	L2	287	10	LTSRRGTVRF		13401
HPV18	L2	391	10	LTSWWDVVPY		13402
HPV18	L2	338	10	LVSATEDNDL		13403
HPV18	L2	338	11	LVSATEDNDLF		13404
HPV18	L2	437	8	LWPLYFYI		13405
HPV18	L2	305	9	MFTSRGTQI		13406
HPV18	L2	386	10	NVTVPLTSSW		13407
HPV18	L2	325	8	PIAPSPY		13408
HPV18	L2	325	9	PIAPSPYI		13409
HPV18	L2	325	11	PIAPSPYIEL		13410
HPV18	L2	390	11	PLTSSWDVVPY		13411

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L2	337	11	PLVSATEDNDL		13412
HPV18	L2	419	9	PTAPASTQY		13413
HPV18	L2	419	10	PTAPASTQYI		13414
HPV18	L2	98	9	PTDPSIVTL		13415
HPV18	L2	98	10	PTDPSIVTLI		13416
HPV18	L2	120	9	PTFTGTSGF		13417
HPV18	L2	120	11	PTFTGTSGFDI		13418
HPV18	L2	376	9	PTISSASSY		13419
HPV18	L2	86	8	PTRPPVVI		13420
HPV18	L2	185	8	PTSGTHGY		13421
HPV18	L2	185	11	PTSGTHGYBEI		13422
HPV18	L2	216	11	PTVRRVAGPRL		13423
HPV18	L2	258	8	PVDTLTF		13424
HPV18	L2	95	9	PVGPTDPSI		13425
HPV18	L2	360	10	PVPSRSTTSF		13426
HPV18	L2	398	8	PVYTGPDI		13427
HPV18	L2	398	10	PVYTGPDI TL		13428
HPV18	L2	452	8	PYFFADGF		13429
HPV18	L2	312	8	QIGARVHF		13430
HPV18	L2	312	9	QIGARVHFY		13431
HPV18	L2	172	10	QTGEVAGNVF		13432
HPV18	L2	233	9	QSVANPEF		13433
HPV18	L2	233	10	QSVANPEFL		13434
HPV18	L2	46	8	QWSSLGIF		13435
HPV18	L2	46	9	QWSSLGIFL		13436
HPV18	L2	426	10	QYIGIHGTHY		13437
HPV18	L2	426	11	QYIGIHGTHYY		13438
HPV18	L2	295	11	RFSRLGQRATM		13439
HPV18	L2	298	8	RLGQRATM		13440
HPV18	L2	298	9	RLGQRATMF		13441
HPV18	L2	220	8	RVAGPRLY		13442
HPV18	L2	316	8	RVHFYHDI		13443
HPV18	L2	316	11	RVHFYHDISPI		13444
HPV18	L2	450	10	RVPYFFADGF		13445
HPV18	L2	368	11	SFAFFKYSPTI		13446
HPV18	L2	49	9	SLGIFLGGL		13447
HPV18	L2	49	11	SLGIFLGGLGI		13448
HPV18	L2	247	10	SLITYDNPAF		13449
HPV18	L2	147	11	STSVSISTTNF		13450
HPV18	L2	153	10	STTNFTNPAF		13451
HPV18	L2	365	8	STTSFAFF		13452
HPV18	L2	365	10	STTSFAFFKY		13453
HPV18	L2	409	8	STTSVWPI		13454
HPV18	L2	235	8	SVANPEFL		13455
HPV18	L2	149	9	SVSISTTNF		13456
HPV18	L2	383	9	SYSNVTVPL		13457

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L2	121	8	TFTGTSGF		13458
HPV18	L2	121	10	TFTGTSGFDI		13459
HPV18	L2	377	8	TISSASSY		13460
HPV18	L2	39	9	TLADKILQW		13461
HPV18	L2	406	9	TLPSTTSVW		13462
HPV18	L2	406	11	TLFSTTSVWPI		13463
HPV18	L2	304	10	TMFTRSGTQI		13464
HPV18	L2	38	8	TTLADKIL		13465
HPV18	L2	38	10	TTLADKILQW		13466
HPV18	L2	154	9	TTNFTNPAF		13467
HPV18	L2	136	8	TTPAVLDI		13468
HPV18	L2	366	9	TTSEAFFKY		13469
HPV18	L2	135	9	TTTPAVLDI		13470
HPV18	L2	388	8	TVPLTSSW		13471
HPV18	L2	217	10	TVRRVAGPRL		13472
HPV18	L2	217	11	TVRRVAGPRLY		13473
HPV18	L2	113	10	VTSGAPRPTF		13474
HPV18	L2	387	9	VTVPLTSSW		13475
HPV18	L2	31	10	VVPKVEGTTL		13476
HPV18	L2	112	11	VVTSGAPRPTF		13477
HPV18	L2	399	9	YIGHGTHY		13478
HPV18	L2	427	9	YIGHGTHY		13479
HPV18	L2	427	10	YIGHGTHYYL		13480
HPV18	L2	427	11	YIGHGTHYYL		13481
HPV18	L2	436	8	YLVPLYFY		13482
HPV18	L2	436	9	YLVPLYFYFI		13483
HPV18	L2	400	8	YTGPDITL		13484
HPV18	L2	435	8	YYLWPLY		13485
HPV18	L2	435	9	YYLWPLYFY		13486
HPV18	L2	435	10	YYLWPLYFYFI		13487
HPV31	E1	371	11	AFLKSNQAKI		13488
HPV31	E1	519	9	ALDGNPVS		13489
HPV31	E1	533	10	ALMQLKCPPL		13490
HPV31	E1	533	11	ALMQLKCPPLL		13491
HPV31	E1	298	9	ALYWYRTGM		13492
HPV31	E1	186	9	AMLGKFEL		13493
HPV31	E1	186	10	AMLGKFELY		13494
HPV31	E1	504	8	ATPCWHY		13495
HPV31	E1	504	9	ATPCWHYI		13496
HPV31	E1	22	11	AVIDRQTGDNI		13497
HPV31	E1	81	9	AVQLKRRY		13498
HPV31	E1	279	8	CISTNCML		13499
HPV31	E1	279	9	CISTNCMLI		13500
HPV31	E1	239	9	CLYCHLQSL		13501
HPV31	E1	284	9	CMLIQPKL		13502
HPV31	E1	213	9	CTDWCVAAF		13503

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E1	100	10	CVDYNISPRL		13504
HPV31	E1	620	10	CVSGQNIRTL		13505
HPV31	E1	508	8	CWHYIDNY		13506
HPV31	E1	508	9	CWHYIDNYL		13507
HPV31	E1	49	9	DFIDNCNVY		13508
HPV31	E1	96	8	DISSCVDY		13509
HPV31	E1	96	10	DISSCVDYNI		13510
HPV31	E1	421	8	DIVKFLRY		13511
HPV31	E1	421	11	DIVKFLRYQQI		13512
HPV31	E1	336	8	DLSQMVQW		13513
HPV31	E1	336	10	DLSQMVQWAY		13514
HPV31	E1	42	9	DTGEDMVDF		13515
HPV31	E1	42	10	DTGEDMVDFI		13516
HPV31	E1	332	9	DTTFDL SQM		13517
HPV31	E1	528	8	DVKHKALM		13518
HPV31	E1	528	10	DVKHKALMQL		13519
HPV31	E1	348	8	DVMDDEI		13520
HPV31	E1	348	10	DVMDDEIAY		13521
HPV31	E1	311	9	DVYGETPEW		13522
HPV31	E1	311	10	DVYGETPEWI		13523
HPV31	E1	418	8	DWRDIVKF		13524
HPV31	E1	418	9	DWRDIVKFL		13525
HPV31	E1	418	11	DWRDIVKFLRY		13526
HPV31	E1	102	8	DYNISPRL		13527
HPV31	E1	102	11	DYNISPRL KAI		13528
HPV31	E1	432	9	EFVSFLSAL		13529
HPV31	E1	432	11	EFVSFLSALKL		13530
HPV31	E1	354	9	ELAYKYAQL		13531
HPV31	E1	583	10	ELSDKNWKS F		13532
HPV31	E1	583	11	ELSDKNWKSFF		13533
HPV31	E1	193	8	ELYGV SFM		13534
HPV31	E1	193	10	ELYGV SFMEL		13535
HPV31	E1	193	11	ELYGV SFMELI		13536
HPV31	E1	168	8	ETPTRNL		13537
HPV31	E1	168	11	ETPTRNLQVL		13538
HPV31	E1	318	9	EWIERQTVL		13539
HPV31	E1	592	9	FFSRTWCRL		13540
HPV31	E1	592	11	FFSRTWCRLNL		13541
HPV31	E1	50	8	FIDNCNVY		13542
HPV31	E1	443	11	FLKGVPKKNCI		13543
HPV31	E1	372	10	FLKSNSQAKI		13544
HPV31	E1	473	9	FLQGCIISY		13545
HPV31	E1	425	9	FLRYQQIEF		13546
HPV31	E1	436	8	FLSALKLF		13547
HPV31	E1	436	9	FLSALKLFL		13548
HPV31	E1	199	8	FMELIRPF		13549

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E1	566	9	FTFPNPPF		13550
HPV31	E1	433	8	FVSFLSAL		13551
HPV31	E1	433	10	FVSFLSALKL		13552
HPV31	E1	433	11	FVSFLSALKLF		13553
HPV31	E1	488	11	FWLQPLADAKI		13554
HPV31	E1	230	9	GFKTLQPY		13555
HPV31	E1	230	11	GFKTLQPYCL		13556
HPV31	E1	499	11	GMLDDATTPCW		13557
HPV31	E1	467	8	GMSLSFL		13558
HPV31	E1	305	9	GMSNISDVY		13559
HPV31	E1	252	10	GMVMLMLVRF		13560
HPV31	E1	11	8	GTGNGWF		13561
HPV31	E1	11	9	GTGNGWFF		13562
HPV31	E1	225	10	GTVAEGFKTL		13563
HPV31	E1	225	11	GTVAEGFKTLL		13564
HPV31	E1	446	8	GVPKKNCI		13565
HPV31	E1	446	9	GVPKKNCIL		13566
HPV31	E1	196	10	GVPKKNCIL		13567
HPV31	E1	196	8	GVSFMEIJ		13568
HPV31	E1	222	11	GVSFMEIIRPF		13569
HPV31	E1	222	10	GVTGTVAEGF		13570
HPV31	E1	16	9	GWFYVEAVI		13571
HPV31	E1	243	9	HLQSLACSW		13572
HPV31	E1	243	11	HLQSLACSWGGM		13573
HPV31	E1	510	11	HYIDNYLRNAL		13574
HPV31	E1	391	10	HYKRAEKRRQM		13575
HPV31	E1	478	11	IISYANSKSHF		13576
HPV31	E1	268	10	ITIEKLLEKL		13577
HPV31	E1	268	11	ITIEKLLEKLL		13578
HPV31	E1	381	8	IVKDCGTM		13579
HPV31	E1	422	10	IVKFLRYQQI		13580
HPV31	E1	190	10	KFKELYGVSF		13581
HPV31	E1	190	11	KFKELYGVSFM		13582
HPV31	E1	424	8	KFLRYQQI		13583
HPV31	E1	424	10	KFLRYQQIEF		13584
HPV31	E1	380	9	KIVKDCGTM		13585
HPV31	E1	276	10	KLLCISTNCM		13586
HPV31	E1	276	11	KLLCISTNCML		13587
HPV31	E1	272	9	KLLEKILCI		13588
HPV31	E1	291	9	KLRSTAAAL		13589
HPV31	E1	291	10	KLRSTAAALY		13590
HPV31	E1	291	11	KLRSTAAALYW		13591
HPV31	E1	119	8	KTAKRRLF		13592
HPV31	E1	119	10	KTAKRRLFEL		13593
HPV31	E1	232	9	KTLQPYCL		13594
HPV31	E1	232	10	KTLQPYCLY		13595

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E1	179	9	KTSNGKAAM		13596
HPV31	E1	179	10	KTSNGKAAML		13597
HPV31	E1	412	8	KVSDEGDW		13598
HPV31	E1	412	11	KVSDEGDWRDI		13599
HPV31	E1	88	10	KYVGSPLSDI		13600
HPV31	E1	125	9	LFELPDSGY		13601
HPV31	E1	470	9	LISFLQGC		13602
HPV31	E1	470	10	LISFLQGCII		13603
HPV31	E1	277	9	LLCISTNCM		13604
HPV31	E1	277	10	LLCISTNCML		13605
HPV31	E1	277	11	LLCISTNCMLI		13606
HPV31	E1	273	8	LLEKLLCI		13607
HPV31	E1	234	8	LLQPYCLY		13608
HPV31	E1	234	11	LLQPYCLYCHIL		13609
HPV31	E1	534	9	LMQLKCPPL		13610
HPV31	E1	534	10	LMQLKCPPLI		13611
HPV31	E1	534	11	LMQLKCPPLII		13612
HPV31	E1	258	11	LVRFKCAKNRI		13613
HPV31	E1	563	10	LVVFTFPNPF		13614
HPV31	E1	240	8	LYCHLQSL		13615
HPV31	E1	194	9	LYGVSMEL		13616
HPV31	E1	194	10	LYGVSMELI		13617
HPV31	E1	299	8	LYWYRTGM		13618
HPV31	E1	299	11	LYWYRTGMSNI		13619
HPV31	E1	500	10	MLDDATTCPW		13620
HPV31	E1	187	8	MLGKFKEL		13621
HPV31	E1	187	9	MLGKFKELY		13622
HPV31	E1	285	8	MLIQPPKL		13623
HPV31	E1	47	11	MVDFIDNCVY		13624
HPV31	E1	253	9	MVMLMLVRF		13625
HPV31	E1	143	11	MVQVEEQTTL		13626
HPV31	E1	340	11	MVQWAYDNDVM		13627
HPV31	E1	547	10	NINAGKDDRW		13628
HPV31	E1	104	9	NISPLKAI		13629
HPV31	E1	104	11	NISPLKAICI		13630
HPV31	E1	135	9	NTEVETQQM		13631
HPV31	E1	460	9	NTGKSYFGM		13632
HPV31	E1	460	11	NTGKSYFGMSL		13633
HPV31	E1	588	10	NWKSFFSRTW		13634
HPV31	E1	573	10	PFDKNGNPVY		13635
HPV31	E1	492	9	PLADAKIGM		13636
HPV31	E1	492	10	PLADAKIGML		13637
HPV31	E1	541	8	PLIITSNI		13638
HPV31	E1	93	11	PLSDISSVDY		13639
HPV31	E1	170	9	PTRNIIQVL		13640
HPV31	E1	524	11	PVSIDVKKHAL		13641

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E1	580	10	PVYELSDKNW		13642
HPV31	E1	237	8	PYCLYCHL		13643
HPV31	E1	237	11	PYCLYCHLQSL		13644
HPV31	E1	557	10	PYLHSLRVVF		13645
HPV31	E1	430	8	QIEFVSFL		13646
HPV31	E1	430	11	QIEFVSLSAL		13647
HPV31	E1	536	8	QLKCPPLL		13648
HPV31	E1	536	9	QLKCPPLLI		13649
HPV31	E1	399	8	QMSMGQWI		13650
HPV31	E1	323	8	QTVLQHSF		13651
HPV31	E1	145	9	QVEEQQTTL		13652
HPV31	E1	342	9	QWAYDNDVM		13653
HPV31	E1	260	9	RFKCAKNRI		13654
HPV31	E1	260	11	RFKCAKNRITI		13655
HPV31	E1	267	8	RTIEKLL		13656
HPV31	E1	267	11	RTIEKLLEKL		13657
HPV31	E1	124	10	RLFELPDSGY		13658
HPV31	E1	562	11	RLVVFTFPNPF		13659
HPV31	E1	303	11	RTGMSNISDVY		13660
HPV31	E1	595	8	RTWCRLNL		13661
HPV31	E1	555	9	RWPYLHSRL		13662
HPV31	E1	427	10	RYQQIEFVSF		13663
HPV31	E1	427	11	RYQQIEFVSFL		13664
HPV31	E1	591	10	SFFSRTWCRL		13665
HPV31	E1	472	8	SFLQGCII		13666
HPV31	E1	472	10	SFLQGCISIY		13667
HPV31	E1	435	8	SFLSALKL		13668
HPV31	E1	435	9	SFLSALKLF		13669
HPV31	E1	435	10	SFLSALKLFL		13670
HPV31	E1	198	9	SFMELIRPF		13671
HPV31	E1	329	9	SFNDTTFDL		13672
HPV31	E1	526	9	SIDVKHKAL		13673
HPV31	E1	526	10	SIDVKHKALM		13674
HPV31	E1	246	8	SLACSWGIM		13675
HPV31	E1	246	10	SLACSWGIMVM		13676
HPV31	E1	246	11	SLACSWGIMVML		13677
HPV31	E1	469	10	SLISFLQGC		13678
HPV31	E1	469	11	SLISFLQGCII		13679
HPV31	E1	294	8	STAAALYW		13680
HPV31	E1	294	9	STAAALYWY		13681
HPV31	E1	211	11	STCTDWCVAAF		13682
HPV31	E1	616	11	STFKCVSGQNI		13683
HPV31	E1	250	8	SWGIMVMLM		13684
HPV31	E1	250	9	SWGIMVMLML		13685
HPV31	E1	480	9	SYANSKSHF		13686
HPV31	E1	480	10	SYANSKSHFW		13687

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E1	480	11	SYANSKSHFWL		13688
HPV31	E1	464	8	SYFGMSLI		13689
HPV31	E1	464	10	SYFGMSLSIF		13690
HPV31	E1	464	11	SYFGMSLSIFL		13691
HPV31	E1	334	10	TFDLSQMVQW		13692
HPV31	E1	617	10	TFKCVSGQNI		13693
HPV31	E1	567	8	TFPNPPE		13694
HPV31	E1	269	9	TIEKLEKL		13695
HPV31	E1	269	10	TIEKLEKLL		13696
HPV31	E1	233	8	TLLQPYCL		13697
HPV31	E1	233	9	TLLQPYCLY		13698
HPV31	E1	333	8	TFDLSQM		13699
HPV31	E1	333	11	TFDLSQMVQW		13700
HPV31	E1	505	8	TTPCWIIYI		13701
HPV31	E1	505	11	TTPCWIIYIDNY		13702
HPV31	E1	226	9	TVAEGFKTL		13703
HPV31	E1	226	10	TVAEGFKTLL		13704
HPV31	E1	565	8	VFTFPNPF		13705
HPV31	E1	565	10	VFTFPNPPF		13706
HPV31	E1	23	10	VIDRQTGDI		13707
HPV31	E1	84	11	VLKRKYVGSPL		13708
HPV31	E1	177	11	VLKTSNKAAM		13709
HPV31	E1	325	11	VLQHSFNDTTF		13710
HPV31	E1	349	9	VMDDSEIAY		13711
HPV31	E1	349	11	VMDDSEIAYKY		13712
HPV31	E1	254	8	VMLMLVRF		13713
HPV31	E1	223	9	VTGTVAEGF		13714
HPV31	E1	564	9	VVFTFPNPF		13715
HPV31	E1	564	11	VVFTFPNPPF		13716
HPV31	E1	581	9	VYELSDKNW		13717
HPV31	E1	312	8	VYGETPEW		13718
HPV31	E1	312	9	VYGETPEWI		13719
HPV31	E1	17	8	WFYVEAVI		13720
HPV31	E1	319	8	WIERQTVL		13721
HPV31	E1	489	10	WLQPLADAKI		13722
HPV31	E1	301	9	WYRTGMSNI		13723
HPV31	E1	465	9	YFGMSLSIF		13724
HPV31	E1	465	10	YFGMSLSIFL		13725
HPV31	E1	511	10	YIDNYLRNAL		13726
HPV31	E1	558	9	YLIISRLVVF		13727
HPV31	E1	558	11	YLIISRLVVFTF		13728
HPV31	E1	89	9	YVGSPLSDI		13729
HPV31	E1	300	10	YWYRTGMSNI		13730
HPV31	E2	72	8	AIELQMML		13731
HPV31	E2	72	11	AIELQMMLLET		13732
HPV31	E2	338	8	AIVTLTYI		13733

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E2	69	9	ALQAIELQM		13734
HPV31	E2	69	10	ALQAIELQMM		13735
HPV31	E2	69	11	ALQAIELQMML		13736
HPV31	E2	61	10	ALSVS KAKAL		13737
HPV31	E2	291	8	ATTPIHL		13738
HPV31	E2	286	10	AVSCPATTPI		13739
HPV31	E2	286	11	AVSCPATTPI		13740
HPV31	E2	307	9	CLRYRLSKY		13741
HPV31	E2	330	10	CTDGKHKNAI		13742
HPV31	E2	40	10	CVLMYKAREM		13743
HPV31	E2	352	8	DFLNTVKI		13744
HPV31	E2	124	8	DVIINTMIH		13745
HPV31	E2	124	11	DVHNTMHTNWN		13746
HPV31	E2	91	9	DWTMQQTSL		13747
HPV31	E2	91	11	DWTMQQTSLEL		13748
HPV31	E2	31	8	DYWKHRL		13749
HPV31	E2	204	11	EISFAGIVTKL		13750
HPV31	E2	74	9	ELQMMLETL		13751
HPV31	E2	100	11	ELYLTAPTGL		13752
HPV31	E2	80	8	ETLNNTY		13753
HPV31	E2	185	9	EVHAGGQVI		13754
HPV31	E2	185	11	EVHAGGQVIVF		13755
HPV31	E2	86	9	EYKNEDWTM		13756
HPV31	E2	171	8	FTEEAKKY		13757
HPV31	E2	168	11	FVNFTEEAKKY		13758
HPV31	E2	156	10	GIYVHEGHI		13759
HPV31	E2	114	8	GYTVEVQF		13760
HPV31	E2	29	8	HIDYWKHI		13761
HPV31	E2	29	10	HIDYWKHRL		13762
HPV31	E2	35	8	HIRLECVL		13763
HPV31	E2	35	9	HIRLECVLM		13764
HPV31	E2	35	10	HIRLECVLMY		13765
HPV31	E2	164	8	HITYFVNF		13766
HPV31	E2	297	8	HLKGDANI		13767
HPV31	E2	297	9	HLKGDANIL		13768
HPV31	E2	18	9	HYENDSKRL		13769
HPV31	E2	130	8	IYTNWKFI		13770
HPV31	E2	130	9	IYTNWKFIY		13771
HPV31	E2	130	10	IYTNWKFIYL		13772
HPV31	E2	295	10	IHLKGDANI		13773
HPV31	E2	295	11	IHLKGDANIL		13774
HPV31	E2	304	9	ILKCLRYRL		13775
HPV31	E2	193	8	IVFPESVF		13776
HPV31	E2	157	9	IYVVEGHI		13777
HPV31	E2	157	11	IYVVEGHITY		13778
HPV31	E2	183	11	KWEVHAGGQVI		13779

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E2	177	8	KYGTGKKW		13780
HPV31	E2	42	8	LMYKAREM		13781
HPV31	E2	42	10	LMYKAREMGI		13782
HPV31	E2	103	8	LTAPTGCCL		13783
HPV31	E2	318	9	LYEQVSSSTW		13784
HPV31	E2	318	11	LYEQVSSSTWIW		13785
HPV31	E2	101	10	LYLTAPTGCCL		13786
HPV31	E2	78	10	MLETLNNTTEY		13787
HPV31	E2	77	11	MMLETLNNTTEY		13788
HPV31	E2	43	9	MYKAREMGI		13789
HPV31	E2	170	9	NFTEEAKKY		13790
HPV31	E2	303	8	NILKCLRY		13791
HPV31	E2	303	10	NILKCLRYRL		13792
HPV31	E2	84	9	NTEYKNEDW		13793
HPV31	E2	84	11	NTEYKNEDWTM		13794
HPV31	E2	254	8	NTHHPNKL		13795
HPV31	E2	254	9	NTHHPNKL		13796
HPV31	E2	127	8	NTHHYTNW		13797
HPV31	E2	127	10	NTHHYTNWKF		13798
HPV31	E2	127	11	NTHHYTNWKFI		13799
HPV31	E2	361	9	NTVSVSTGY		13800
HPV31	E2	361	10	NTVSVSTGYM		13801
HPV31	E2	9	8	NVCQDKIL		13802
HPV31	E2	9	11	NVCQDKILEHY		13803
HPV31	E2	133	9	NWKFIYLCI		13804
HPV31	E2	294	11	PIHLKGDANI		13805
HPV31	E2	106	10	PTGCLKKHGY		13806
HPV31	E2	120	10	QFDGDVHNTM		13807
HPV31	E2	317	10	QLYEQVSSSTW		13808
HPV31	E2	96	8	QTSLELYL		13809
HPV31	E2	191	10	QVIVFPESVF		13810
HPV31	E2	151	8	QVNCKGIY		13811
HPV31	E2	151	9	QVNCKGIYY		13812
HPV31	E2	321	8	QVSSTWHW		13813
HPV31	E2	25	8	RLCDHIDY		13814
HPV31	E2	25	9	RLCDHIDYW		13815
HPV31	E2	37	8	RLCCLMY		13816
HPV31	E2	7	9	RLNVCQDKI		13817
HPV31	E2	7	10	RLNVCQDKIL		13818
HPV31	E2	311	8	RLSKYKQL		13819
HPV31	E2	311	9	RLSKYKQLY		13820
HPV31	E2	309	10	RYRLSKYKQL		13821
HPV31	E2	309	11	RYRLSKYKQLY		13822
HPV31	E2	206	9	SFAGIVTKL		13823
HPV31	E2	53	10	SINHIQVVPAL		13824
HPV31	E2	346	8	STSQRDDEF		13825

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E2	346	9	STSQRDDFL		13826
HPV31	E2	266	10	SVDSVNCGVI		13827
HPV31	E2	198	8	SVFSSDEI		13828
HPV31	E2	198	10	SVFSSDEISF		13829
HPV31	E2	63	8	SVSKAKAL		13830
HPV31	E2	63	11	SVSKAKALQAI		13831
HPV31	E2	364	9	SVSTGYMTI		13832
HPV31	E2	128	9	TMHYTNWKF		13833
HPV31	E2	128	10	TMHYTNWKFI		13834
HPV31	E2	128	11	TMHYTNWKFIY		13835
HPV31	E2	93	9	TMQQTSL		13836
HPV31	E2	93	10	TMQQTSLLEY		13837
HPV31	E2	93	11	TMQQTSLLEYL		13838
HPV31	E2	221	10	TTSNSKTCAL		13839
HPV31	E2	220	11	TTTNSKTCAL		13840
HPV31	E2	362	8	TVSVSTGY		13841
HPV31	E2	362	9	TVSVSTGYM		13842
HPV31	E2	362	11	TVSVSTGYMTI		13843
HPV31	E2	343	11	TVISTSQRDDF		13844
HPV31	E2	199	9	VFSSDEISF		13845
HPV31	E2	192	9	VIVFPESVF		13846
HPV31	E2	41	9	VLMYKAREM		13847
HPV31	E2	41	11	VLMYKAREMGI		13848
HPV31	E2	147	11	VVEGVNCKGI		13849
HPV31	E2	92	8	WTMQQTSL		13850
HPV31	E2	92	10	WTMQQTSL		13851
HPV31	E2	92	11	WTMQQTSLLEY		13852
HPV31	E2	344	10	YISTSQRDDF		13853
HPV31	E2	344	11	YISTSQRDDFL		13854
HPV31	E2	102	9	YLTAPTGC		13855
HPV31	E2	131	8	YTNWKFIY		13856
HPV31	E2	131	9	YTNWKFIYL		13857
HPV31	E2	131	11	YTNWKFIYLCI		13858
HPV31	E2	159	9	YVHEGHITY		13859
HPV31	E2	159	10	YVHEGHITYF		13860
HPV31	E2	32	11	YWKHRLECVL		13861
HPV31	E2	158	8	YVHEGHI		13862
HPV31	E2	158	10	YVHEGHITY		13863
HPV31	E2	158	11	YVHEGHITYF		13864
HPV31	E5	40	9	ATLLLLVI		13865
HPV31	E5	40	10	ATLLLLVIL		13866
HPV31	E5	40	11	ATLLLLVILW		13867
HPV31	E5	53	8	ATSLRCF		13868
HPV31	E5	53	10	ATSLRCFCI		13869
HPV31	E5	53	11	ATSLRCFCIY		13870
HPV31	E5	59	8	CFCIYVVF		13871

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E5	59	9	CFCIYVVF		13872
HPV31	E5	59	10	CFCIYVVFY		13873
HPV31	E5	59	11	CFCIYVVFYI		13874
HPV31	E5	18	10	CFCVLLFVCL		13875
HPV31	E5	14	9	CFLCFCV		13876
HPV31	E5	14	10	CFLCFCVLL		13877
HPV31	E5	14	11	CFLCFCVLLF		13878
HPV31	E5	61	8	CIYVVFY		13879
HPV31	E5	61	9	CIYVVFYI		13880
HPV31	E5	61	11	CIYVVFYIPL		13881
HPV31	E5	26	9	CLVIRPLV		13882
HPV31	E5	20	8	CVLLFVCL		13883
HPV31	E5	20	10	CVLLFVCLVI		13884
HPV31	E5	3	9	ELNISTVSI		13885
HPV31	E5	3	11	ELNISTVSI		13886
HPV31	E5	66	9	FYIPLFVI		13887
HPV31	E5	15	8	FLLCFCV		13888
HPV31	E5	15	9	FLLCFCVLL		13889
HPV31	E5	15	10	FLLCFCVLLF		13890
HPV31	E5	24	9	FVCLVIRPL		13891
HPV31	E5	24	11	FVCLVIRPLV		13892
HPV31	E5	72	9	FVIHASF		13893
HPV31	E5	72	10	FVIHASF		13894
HPV31	E5	48	10	ILWVIATSPL		13895
HPV31	E5	11	9	IVLCFLCF		13896
HPV31	E5	67	8	IYIPLFVI		13897
HPV31	E5	62	8	IYVVFYI		13898
HPV31	E5	62	10	IYVVFYIPL		13899
HPV31	E5	62	11	IYVVFYIPLF		13900
HPV31	E5	23	10	LFVCLVIRPL		13901
HPV31	E5	71	10	LFVIHASF		13902
HPV31	E5	71	11	LFVIHASF		13903
HPV31	E5	45	8	LIVILWVI		13904
HPV31	E5	16	8	LLCFCVLL		13905
HPV31	E5	16	9	LLCFCVLLF		13906
HPV31	E5	22	8	LLFVCLVI		13907
HPV31	E5	22	11	LLFVCLVIRPL		13908
HPV31	E5	44	9	LLVILWVI		13909
HPV31	E5	43	8	LLVILW		13910
HPV31	E5	43	10	LLVILWVI		13911
HPV31	E5	42	8	LLLIVIL		13912
HPV31	E5	42	9	LLLIVILW		13913
HPV31	E5	42	11	LLLIVILWVI		13914
HPV31	E5	27	8	LVIRPLV		13915
HPV31	E5	32	8	LVLSVSVY		13916
HPV31	E5	32	11	LVLSVSVYATL		13917

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E5	49	9	LWVIATSPL		13918
HPV31	E5	1	11	MIENISTVSI		13919
HPV31	E5	5	9	NISTVSVIL		13920
HPV31	E5	5	11	NISTVSVILCF		13921
HPV31	E5	70	11	PLFVIHTHASF		13922
HPV31	E5	56	8	PLRCFCIY		13923
HPV31	E5	56	11	PLRCFCIYVVF		13924
HPV31	E5	31	9	PLVLSVSVY		13925
HPV31	E5	10	8	SIVLCFLL		13926
HPV31	E5	10	10	SIVLCFLLCF		13927
HPV31	E5	7	9	STVSIVLCF		13928
HPV31	E5	7	10	STVSIVLCFL		13929
HPV31	E5	7	11	STVSIVLCFLL		13930
HPV31	E5	35	8	SVSVYATL		13931
HPV31	E5	35	9	SVSVYATLL		13932
HPV31	E5	35	10	SVSVYATLLL		13933
HPV31	E5	35	11	SVSVYATLLLL		13934
HPV31	E5	37	8	SVYATLLL		13935
HPV31	E5	37	9	SVYATLLLL		13936
HPV31	E5	37	10	SVYATLLLLI		13937
HPV31	E5	41	8	TLLLLI		13938
HPV31	E5	41	9	TLLLLIIVL		13939
HPV31	E5	41	10	TLLLLIIVLW		13940
HPV31	E5	8	8	TVSIVLCF		13941
HPV31	E5	8	9	TVSIVLCFL		13942
HPV31	E5	8	10	TVSIVLCFLL		13943
HPV31	E5	65	8	VFIYIPLF		13944
HPV31	E5	65	10	VFIYIPLFVI		13945
HPV31	E5	51	10	VIATSPRCF		13946
HPV31	E5	73	8	VIHTHASF		13947
HPV31	E5	73	9	VIHTHASF		13948
HPV31	E5	47	11	VILWVIATSPL		13949
HPV31	E5	12	8	VLCFLLCF		13950
HPV31	E5	12	11	VLCFLLCFVCL		13951
HPV31	E5	21	9	VLLFVCLVI		13952
HPV31	E5	33	10	VLSVSVYATL		13953
HPV31	E5	33	11	VLSVSVYATLL		13954
HPV31	E5	64	8	VVFIYIPL		13955
HPV31	E5	64	9	VVFIYIPLF		13956
HPV31	E5	64	11	VVFIYIPLFVI		13957
HPV31	E5	38	8	VYATLLLL		13958
HPV31	E5	38	9	VYATLLLLI		13959
HPV31	E5	38	11	VYATLLLLIIV		13960
HPV31	E5	50	8	WVIATSPL		13961
HPV31	E5	50	11	WVIATSPRCF		13962
HPV31	E5	63	9	YVVFYIPL		13963

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E5	63	10	YVFIYIPLF		13964
HPV31	E6	46	9	AFTDLTIV		13965
HPV31	E6	18	9	ALEIPYDEL		13966
HPV31	E6	18	11	ALEIPYDELRL		13967
HPV31	E6	103	8	CITCQRPL		13968
HPV31	E6	66	11	CLRFYSKVSEF		13969
HPV31	E6	63	8	CTKCLRFY		13970
HPV31	E6	30	8	CVYCKGQL		13971
HPV31	E6	44	9	DFAFTDLTI		13972
HPV31	E6	44	11	DFAFTDLTIV		13973
HPV31	E6	57	11	DTPHGVCTKCL		13974
HPV31	E6	75	10	EFRWYRYSVY		13975
HPV31	E6	20	9	EIPYDELRL		13976
HPV31	E6	25	8	ELRLNCVY		13977
HPV31	E6	14	8	ELSSALEI		13978
HPV31	E6	14	10	ELSSALEIPY		13979
HPV31	E6	39	9	ETEVLDFAF		13980
HPV31	E6	41	10	EVLDFAFDIL		13981
HPV31	E6	47	8	FTDLTIV		13982
HPV31	E6	69	8	FYSKVSEF		13983
HPV31	E6	69	10	FYSKVSEFRW		13984
HPV31	E6	69	11	FYSKVSEFRWY		13985
HPV31	E6	95	10	GICDLLIRCI		13986
HPV31	E6	61	9	GVCTKCLRF		13987
HPV31	E6	61	10	GVCTKCLRFY		13988
HPV31	E6	118	8	HLDKKKRF		13989
HPV31	E6	118	11	HLDKKKRFHNI		13990
HPV31	E6	11	9	KLHELSSAL		13991
HPV31	E6	11	11	KLHELSSALEI		13992
HPV31	E6	90	10	KLTKNGICDL		13993
HPV31	E6	90	11	KLTKNGICDLL		13994
HPV31	E6	72	8	KVSEFRWY		13995
HPV31	E6	72	10	KVSEFRWYRY		13996
HPV31	E6	100	11	LIRCTCQRPL		13997
HPV31	E6	37	9	LTETEVLDL		13998
HPV31	E6	37	11	LTETEVLDFAF		13999
HPV31	E6	91	9	LTNGKICDL		14000
HPV31	E6	91	10	LTNGKICDLL		14001
HPV31	E6	91	11	LTNGKICDLLI		14002
HPV31	E6	127	11	NIGGRWTGRCI		14003
HPV31	E6	109	11	PLCPEEKQRHL		14004
HPV31	E6	22	11	PYDELRLNCVY		14005
HPV31	E6	36	8	QLTETEV		14006
HPV31	E6	36	10	QLTETEVLDL		14007
HPV31	E6	124	9	RFINIGRW		14008
HPV31	E6	68	9	RFYSKVSEF		14009

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E6	68	11	RFYSKVSEFRW		14010
HPV31	E6	27	11	RLNCVYCKGQL		14011
HPV31	E6	131	10	RWTGRCIACW		14012
HPV31	E6	77	8	RWYRYSVY		14013
HPV31	E6	80	9	RYSVYGTTL		14014
HPV31	E6	82	10	SVYGTLEKL		14015
HPV31	E6	87	10	TLEKLTNKG		14016
HPV31	E6	86	11	TTLEKLTNKG		14017
HPV31	E6	42	9	VLDFAFTDL		14018
HPV31	E6	42	11	VLDFAFTDLTI		14019
HPV31	E6	83	9	VYGTLEKL		14020
HPV31	E6	132	9	WTGRCIACW		14021
HPV31	E6	78	11	WYRYSVYGTTL		14022
HPV31	E7	19	10	ATDLHCYEQL		14023
HPV31	E7	68	9	CVQSTQVDI		14024
HPV31	E7	68	11	CVQSTQVDIRI		14025
HPV31	E7	75	8	DIRILQEL		14026
HPV31	E7	75	9	DIRILQELL		14027
HPV31	E7	75	10	DIRILQELLM		14028
HPV31	E7	21	8	DLHCYEQL		14029
HPV31	E7	14	9	DLQPEATDL		14030
HPV31	E7	48	10	DTSNYNIVTF		14031
HPV31	E7	81	9	ELLMGSFGI		14032
HPV31	E7	4	8	ETPTLQDY		14033
HPV31	E7	4	10	ETPTLQDYVL		14034
HPV31	E7	88	11	GIVCPNCSTRL		14035
HPV31	E7	78	10	ILQELLMGSF		14036
HPV31	E7	89	10	IVCPNCSTRL		14037
HPV31	E7	82	8	LLMGSGFI		14038
HPV31	E7	6	8	PTLQDYVL		14039
HPV31	E7	6	10	PTLQDYVLDL		14040
HPV31	E7	73	10	QVDIRILQEL		14041
HPV31	E7	73	11	QVDIRILQELL		14042
HPV31	E7	77	8	RILQELLM		14043
HPV31	E7	77	11	RILQELLMGSF		14044
HPV31	E7	66	11	RLCVQSTQVDI		14045
HPV31	E7	71	8	STQVDIRI		14046
HPV31	E7	71	9	STQVDIRIL		14047
HPV31	E7	56	10	TFCCQCKSTL		14048
HPV31	E7	7	9	TLQDYVLDL		14049
HPV31	E7	12	11	VLDLQPEATDL		14050
HPV31	E7	55	11	VTFCQCKSTL		14051
HPV31	L1	348	9	AIANSDDTF		14052
HPV31	L1	398	8	AILEDWNF		14053
HPV31	L1	398	10	AILEDWNFGL		14054
HPV31	L1	180	10	AITPGDCPPL		14055

Table X
A24 Supernotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L1	213	11	ALQDTKSNVPL		14056
HPV31	L1	285	8	ATLANSTY		14057
HPV31	L1	285	9	ATLANSTYF		14058
HPV31	L1	147	11	CISMDYKQTQL		14059
HPV31	L1	158	9	CLLGCKPPI		14060
HPV31	L1	224	9	DICNSICKY		14061
HPV31	L1	387	9	DIMTYIHSM		14062
HPV31	L1	459	11	DLQFPLGRKF		14063
HPV31	L1	372	8	DLQHFQL		14064
HPV31	L1	372	11	DLQHFQLCKI		14065
HPV31	L1	200	10	DMVDTGFGAM		14066
HPV31	L1	129	8	DTENSRY		14067
HPV31	L1	203	9	DTGFGAMDF		14068
HPV31	L1	216	8	DTKSNVPL		14069
HPV31	L1	216	10	DTKSNVPLDI		14070
HPV31	L1	353	9	DTTFKSNF		14071
HPV31	L1	336	8	DTTRSTNM		14072
HPV31	L1	417	11	DTYRFVTSQAI		14073
HPV31	L1	151	9	DYKQTQLCL		14074
HPV31	L1	151	10	DYKQTQLCLL		14075
HPV31	L1	234	10	DYKQQLCLL		14076
HPV31	L1	444	9	DYLFQFIF		14077
HPV31	L1	370	8	EFDLQFIFQL		14078
HPV31	L1	107	8	EVGRGQPL		14079
HPV31	L1	449	8	EVNLKEKF		14080
HPV31	L1	363	9	EYLRHGEEF		14081
HPV31	L1	363	11	EYLRHGEEFDL		14082
HPV31	L1	26	8	EYVTRINI		14083
HPV31	L1	26	9	EYVTRINIY		14084
HPV31	L1	26	10	EYVTRINIYY		14085
HPV31	L1	248	9	FFYLRREQM		14086
HPV31	L1	248	10	FFYLRREQMF		14087
HPV31	L1	375	8	FIFQLCKI		14088
HPV31	L1	375	10	FIFQLCKITL		14089
HPV31	L1	447	10	FWEVNLKEKF		14090
HPV31	L1	249	8	FYLREQM		14091
HPV31	L1	249	9	FYLREQMF		14092
HPV31	L1	91	9	FYNPETQRL		14093
HPV31	L1	91	11	FYNPETQRLVW		14094
HPV31	L1	205	10	GFGAMDFTAL		14095
HPV31	L1	85	8	GFPDTSFY		14096
HPV31	L1	323	8	GICWGNQL		14097
HPV31	L1	323	9	GICWGNQLF		14098
HPV31	L1	117	8	GISGHPLI		14099
HPV31	L1	117	11	GISGHPLLNKF		14100
HPV31	L1					14101

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L1	105	10	GLEVGRGQPL		14102
HPV31	L1	68	11	GLQYRVFVRL		14103
HPV31	L1	406	10	GLTTPPSGSL		14104
HPV31	L1	141	8	GTDNRECI		14105
HPV31	L1	141	10	GTDNRECISM		14106
HPV31	L1	266	11	GTVGESVPTDL		14107
HPV31	L1	115	9	GVGISGHPL		14108
HPV31	L1	115	10	GVGISGHPLL		14109
HPV31	L1	474	8	GYRARKPF		14110
HPV31	L1	307	8	IFNKPYWM		14111
HPV31	L1	376	9	IFQLCKITL		14112
HPV31	L1	399	9	ILEDWNEGL		14113
HPV31	L1	388	8	IMTYIHSM		14114
HPV31	L1	382	8	ITLSADIM		14115
HPV31	L1	382	10	ITLSADIMTY		14116
HPV31	L1	382	11	ITLSADIMTYI		14117
HPV31	L1	181	9	ITPGDCPPL		14118
HPV31	L1	181	11	ITPGDCPPEL		14119
HPV31	L1	61	9	IVPKVSGL		14120
HPV31	L1	61	11	IVPKVSGLY		14121
HPV31	L1	33	10	IYHAGSARL		14122
HPV31	L1	33	11	IYHAGSARLL		14123
HPV31	L1	126	11	KFDDTENSRY		14124
HPV31	L1	83	9	KFGFPTDSF		14125
HPV31	L1	83	10	KFGFPTDSFY		14126
HPV31	L1	468	8	KFLQAGY		14127
HPV31	L1	455	9	KFSADLDQF		14128
HPV31	L1	455	11	KFSADLDQFPL		14129
HPV31	L1	381	8	KITLSADI		14130
HPV31	L1	381	9	KITLSADIM		14131
HPV31	L1	381	11	KITLSADIMTY		14132
HPV31	L1	60	10	KIVVPKVSGL		14133
HPV31	L1	237	11	KMVAEPYGDTL		14134
HPV31	L1	65	10	KVSGLYRVF		14135
HPV31	L1	20	8	KVSTDEY		14136
HPV31	L1	231	8	KYPDYLKM		14137
HPV31	L1	247	10	LEFYLRREQM		14138
HPV31	L1	247	11	LEFYLRREQMF		14139
HPV31	L1	159	8	LLGCKPPI		14140
HPV31	L1	42	8	LLTVGHPY		14141
HPV31	L1	42	9	LLTVGHPYY		14142
HPV31	L1	42	11	LLTVGHPYYSI		14143
HPV31	L1	407	9	LLTTPPSGSL		14144
HPV31	L1	43	8	LTVGHPYY		14145
HPV31	L1	43	10	LTVGHPYYSI		14146
HPV31	L1	99	8	LVWACVGL		14147

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV31	L1	3	10	LWRPSEATVY	14148
HPV31	L1	3	11	LWRPSEATVYL	14149
HPV31	L1	389	11	MTYIHSMNPAL	14150
HPV31	L1	238	10	MVAEPYGDYL	14151
HPV31	L1	238	11	MVAEPYGDYLF	14152
HPV31	L1	201	9	MVDTGFGAM	14153
HPV31	L1	201	11	MVDTGFGAMDF	14154
HPV31	L1	300	8	MVTSDAQI	14155
HPV31	L1	300	9	MVTSDAQIF	14156
HPV31	L1	32	11	NIYYHAGSARL	14157
HPV31	L1	451	10	NLKEKFSADL	14158
HPV31	L1	342	8	NMSVCAAI	14159
HPV31	L1	220	10	NVPLDICNSI	14160
HPV31	L1	441	8	PFKDYVFW	14161
HPV31	L1	222	8	PLDICNSI	14162
HPV31	L1	222	11	PLDIGNSICKY	14163
HPV31	L1	188	9	PLELKNSVI	14164
HPV31	L1	464	8	PLGRKFLL	14165
HPV31	L1	113	11	PLGVGISGHPL	14166
HPV31	L1	17	11	PVSKVVSTDEY	14167
HPV31	L1	242	8	PYGDYLF	14168
HPV31	L1	242	9	PYGDYLFY	14169
HPV31	L1	242	10	PYGDYLFYF	14170
HPV31	L1	374	9	QFIFQLCKI	14171
HPV31	L1	374	11	QFIFQLCKITL	14172
HPV31	L1	462	8	QFPLGRKF	14173
HPV31	L1	462	9	QFPLGRKFL	14174
HPV31	L1	462	10	QFPLGRKFLL	14175
HPV31	L1	306	8	QFNKPYW	14176
HPV31	L1	306	9	QFNKPYWM	14177
HPV31	L1	378	11	QLCKITLSADI	14178
HPV31	L1	156	11	QLCLLGCKPPI	14179
HPV31	L1	255	8	QMFVRHFF	14180
HPV31	L1	70	9	QYRVERVRL	14181
HPV31	L1	420	8	RFVTSQAI	14182
HPV31	L1	41	9	RLLTVGHYP	14183
HPV31	L1	41	10	RLLTVGHYPY	14184
HPV31	L1	77	8	RLPDPNKF	14185
HPV31	L1	77	10	RLPDPNKF	14186
HPV31	L1	98	9	RLVWACVGL	14187
HPV31	L1	75	10	RVRLPDNKF	14188
HPV31	L1	90	10	SFYNPETQRL	14189
HPV31	L1	228	8	SICKYPDY	14190
HPV31	L1	228	9	SICKYPDY	14191
HPV31	L1	228	11	SICKYPDYLM	14192
HPV31	L1	51	11	SIPKSDNPCKI	14193

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L1	414	8	SLEDTYRF		14194
HPV31	L1	2	11	SLWRPSEATVY		14195
HPV31	L1	149	9	SMDYKQTQL		14196
HPV31	L1	149	11	SMDYKQTQLCL		14197
HPV31	L1	394	10	SMNPAILEDW		14198
HPV31	L1	299	9	SMVTSDAQI		14199
HPV31	L1	299	10	SMVTSDAQIF		14200
HPV31	L1	283	10	STATLANSTY		14201
HPV31	L1	283	11	STATLANSTYF		14202
HPV31	L1	23	11	STDEYVTRTNI		14203
HPV31	L1	340	10	STNMSVCAAI		14204
HPV31	L1	290	11	STYFPTPSGSM		14205
HPV31	L1	194	8	SVIQDQDM		14206
HPV31	L1	271	8	SVPTDLYI		14207
HPV31	L1	355	10	TFKSSNFKEY		14208
HPV31	L1	355	11	TFKSSNFKEYL		14209
HPV31	L1	286	8	TLANSTYF		14210
HPV31	L1	246	11	TLFFYLRRQDM		14211
HPV31	L1	383	9	TLADIMITY		14212
HPV31	L1	383	10	TLADIMITYI		14213
HPV31	L1	354	8	TFKSSNF		14214
HPV31	L1	354	11	TFKSSNFKEY		14215
HPV31	L1	408	8	TPPSGSL		14216
HPV31	L1	267	10	TVGESVPTDL		14217
HPV31	L1	267	11	TVGESVPTDLY		14218
HPV31	L1	44	9	TVGHPYYSI		14219
HPV31	L1	333	11	TVVDTRSTNM		14220
HPV31	L1	291	10	TYFPTPSGSM		14221
HPV31	L1	390	10	TYIHSMPAI		14222
HPV31	L1	390	11	TYIHSMPAIL		14223
HPV31	L1	418	10	TYRFVTSQAI		14224
HPV31	L1	446	11	VFEVNLKEKF		14225
HPV31	L1	28	8	VTRTNIYY		14226
HPV31	L1	301	8	VTSDAQIF		14227
HPV31	L1	334	10	VVDTRSTNM		14228
HPV31	L1	62	8	VVPKVSGL		14229
HPV31	L1	62	10	VVPKVSGLQY		14230
HPV31	L1	292	9	YFPTPSGSM		14231
HPV31	L1	391	9	YIHSMPAI		14232
HPV31	L1	391	10	YIHSMPAIL		14233
HPV31	L1	277	11	YIKSGSTATL		14234
HPV31	L1	235	9	YIKMVAEPY		14235
HPV31	L1	364	8	YLRHGEFF		14236
HPV31	L1	364	10	YLRHGEFFDL		14237
HPV31	L1	250	8	YLRREQMF		14238
HPV31	L1	445	8	YVFEVNL		14239

Table X.
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L1	27	8	YVTRTNIV		14240
HPV31	L1	27	9	YVTRTNIVY		14241
HPV31	L1	34	9	YYHAGSARL		14242
HPV31	L1	34	10	YYHAGSARLL		14243
HPV31	L2	286	11	ALTSRRNTVRY		14244
HPV31	L2	311	9	ATIGARVHY		14245
HPV31	L2	311	10	ATIGARVHYV		14246
HPV31	L2	311	11	ATIGARVHYYY		14247
HPV31	L2	226	8	ATQQVKVI		14248
HPV31	L2	135	10	ATTADTTPI		14249
HPV31	L2	135	11	ATTADTTPIAL		14250
HPV31	L2	342	11	ATTSTLNDGL		14251
HPV31	L2	376	11	AVQSTSAVSAY		14252
HPV31	L2	251	11	AYETVNAEESL		14253
HPV31	L2	385	11	AYVPTNTTVP		14254
HPV31	L2	275	8	DFLDIAL		14255
HPV31	L2	438	8	DFYLHPSY		14256
HPV31	L2	438	9	DFYLHPSYY		14257
HPV31	L2	438	10	DFYLHPSYYM		14258
HPV31	L2	438	11	DFYLHPSYYML		14259
HPV31	L2	278	10	DIALLIRPAL		14260
HPV31	L2	354	8	DIYADTDF		14261
HPV31	L2	116	8	DVGAPAPI		14262
HPV31	L2	31	11	DVIPKIEHTTI		14263
HPV31	L2	190	8	EIPMDTFI		14264
HPV31	L2	171	8	ETSGHLLL		14265
HPV31	L2	253	9	ETVNAEESL		14266
HPV31	L2	253	10	ETVNAEESLY		14267
HPV31	L2	253	11	ETVNAEESLYF		14268
HPV31	L2	196	10	FIVSTNNENI		14269
HPV31	L2	237	8	FLSAPKQL		14270
HPV31	L2	237	9	FLSAPKQLI		14271
HPV31	L2	237	11	FLSAPKQLITY		14272
HPV31	L2	433	8	FVDGGDFY		14273
HPV31	L2	433	9	FVDGGDFYL		14274
HPV31	L2	439	8	FYLHPSYY		14275
HPV31	L2	439	9	FYLHPSYYM		14276
HPV31	L2	439	10	FYLHPSYYML		14277
HPV31	L2	113	11	GIVDVGAPAPI		14278
HPV31	L2	351	11	GLYDIYADTDF		14279
HPV31	L2	26	8	GTCPSDVI		14280
HPV31	L2	26	11	GTCPSDVIPKI		14281
HPV31	L2	65	8	GTGGRITGY		14282
HPV31	L2	65	11	GTGGRITGYVPL		14283
HPV31	L2	52	9	GVFFGGLGI		14284
HPV31	L2	213	8	GVRPAPRL		14285

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L2	213	10	GVRPARLGL		14286
HPV31	L2	213	11	GVRPARLGLY		14287
HPV31	L2	175	9	HLLSSSI		14288
HPV31	L2	38	8	HTTIADQI		14289
HPV31	L2	38	9	HTTIADQIL		14290
HPV31	L2	38	11	HTTIADQILRY		14291
HPV31	L2	318	9	HYYYDISSI		14292
HPV31	L2	403	9	IFSGPDVPI		14293
HPV31	L2	432	8	IFVDGGDF		14294
HPV31	L2	432	9	IFVDGGDFY		14295
HPV31	L2	432	10	IFVDGGDFYL		14296
HPV31	L2	279	9	IHALHRPAL		14297
HPV31	L2	45	10	ILRYGSMGVF		14298
HPV31	L2	45	11	ILRYGSMGVFF		14299
HPV31	L2	245	8	ITYENPAY		14300
HPV31	L2	114	10	IVDVGAPAPI		14301
HPV31	L2	105	10	IVSLVEESGI		14302
HPV31	L2	197	9	IVSTNNENI		14303
HPV31	L2	35	11	KIEHTTIADQI		14304
HPV31	L2	231	8	KVIDPTFL		14305
HPV31	L2	244	9	LITYENPAY		14306
HPV31	L2	176	8	LLSSSI		14307
HPV31	L2	287	10	LTSRRNTVRY		14308
HPV31	L2	352	10	LYDIYADTDF		14309
HPV31	L2	261	10	LYFSNTSHNI		14310
HPV31	L2	447	11	MLKRRRKRVSY		14311
HPV31	L2	269	8	NIAPDPDF		14312
HPV31	L2	269	9	NIAPDPDFL		14313
HPV31	L2	269	11	NIAPDPDFLDI		14314
HPV31	L2	204	8	NITSSTPI		14315
HPV31	L2	390	10	NTTVPLSTGF		14316
HPV31	L2	292	8	NTVYSRL		14317
HPV31	L2	187	10	NYEEIPMDTF		14318
HPV31	L2	187	11	NYEEIPMDTFI		14319
HPV31	L2	410	10	PIEHAPTQVF		14320
HPV31	L2	402	10	PIFSGPDVPI		14321
HPV31	L2	210	11	PIPGVRRPARL		14322
HPV31	L2	122	11	PIPHPTTSGF		14323
HPV31	L2	88	8	PIRPPVSI		14324
HPV31	L2	422	11	PLAPTPQVSI		14325
HPV31	L2	100	9	PLDPSIVSL		14326
HPV31	L2	394	8	PLSTGFDI		14327
HPV31	L2	394	10	PLSTGFDIPI		14328
HPV31	L2	394	11	PLSTGFDIPIF		14329
HPV31	L2	235	10	PTFLSAPKQL		14330
HPV31	L2	235	11	PTFLSAPKQLI		14331

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L2	156	9	PTFTDPSVL		14332
HPV31	L2	388	8	PTNTTVPL		14333
HPV31	L2	167	10	PTPAETSGHL		14334
HPV31	L2	167	11	PTPAETSGHLL		14335
HPV31	L2	415	9	PTQVFPPL		14336
HPV31	L2	425	8	PTTPQVSI		14337
HPV31	L2	425	9	PTTPQVSIF		14338
HPV31	L2	127	8	PTTSGFDI		14339
HPV31	L2	97	9	PVGPLDPSI		14340
HPV31	L2	92	10	PVSIDPVGPL		14341
HPV31	L2	44	8	QILRYGSM		14342
HPV31	L2	44	11	QILRYGSMGVF		14343
HPV31	L2	243	10	QLITYENPAY		14344
HPV31	L2	303	11	QTLRTRSGATI		14345
HPV31	L2	229	9	QVKVIDPTF		14346
HPV31	L2	229	10	QVKVIDPTFL		14347
HPV31	L2	429	11	QVSIFVDGGDF		14348
HPV31	L2	298	8	RLGNKQTL		14349
HPV31	L2	9	10	RTKRASATQL		14350
HPV31	L2	9	11	RTKRASATQLY		14351
HPV31	L2	306	8	RTRSGATI		14352
HPV31	L2	316	8	RVHYYDI		14353
HPV31	L2	316	11	RVHYYDDISSI		14354
HPV31	L2	47	8	RYGSMGVF		14355
HPV31	L2	295	9	RYGSMGVFF		14356
HPV31	L2	94	11	RYSLGNKQTL		14357
HPV31	L2	431	8	SIDPVGPL		14358
HPV31	L2	431	9	SIFVDGGDF		14359
HPV31	L2	431	10	SIFVDGGDFY		14360
HPV31	L2	431	11	SIFVDGGDFYL		14361
HPV31	L2	325	9	SINPAGESI		14362
HPV31	L2	325	11	SINPAGESIEM		14363
HPV31	L2	86	10	SIPRPVSI		14364
HPV31	L2	182	10	SISTHNYEEL		14365
HPV31	L2	104	11	SIVSLVEESGI		14366
HPV31	L2	107	8	SLVEESGI		14367
HPV31	L2	260	11	SLYFSNTSIINI		14368
HPV31	L2	50	9	SMGVFFGGL		14369
HPV31	L2	50	11	SMGVFFGGGLGI		14370
HPV31	L2	396	8	STGFDIPI		14371
HPV31	L2	396	9	STGFDIPIF		14372
HPV31	L2	151	8	STIENPTF		14373
HPV31	L2	184	8	STHNYEEL		14374
HPV31	L2	184	10	STHNYEEIPM		14375
HPV31	L2	346	8	STLNDGLY		14376
HPV31	L2	346	10	STLNDGLYDI		14377

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L2	346	11	STLNDGLYDIY		14378
HPV31	L2	379	8	STSAVSAY		14379
HPV31	L2	80	8	STVSEASI		14380
HPV31	L2	80	10	STVSEASIP		14381
HPV31	L2	149	10	SVSTHENPTF		14382
HPV31	L2	195	11	TFIVSTNNENI		14383
HPV31	L2	236	9	TFLSAPKQL		14384
HPV31	L2	236	10	TFLSAPKQLI		14385
HPV31	L2	157	8	TFTDPSVL		14386
HPV31	L2	40	9	TIADQILRY		14387
HPV31	L2	312	8	TIGARVHY		14388
HPV31	L2	312	9	TIGARVHY		14389
HPV31	L2	312	10	TIGARVHY		14390
HPV31	L2	347	9	TLNDGLYDI		14391
HPV31	L2	347	10	TLNDGLYDIY		14392
HPV31	L2	304	10	TLTRSGATI		14393
HPV31	L2	136	9	TTADTTPAI		14394
HPV31	L2	136	10	TTADTTPAIL		14395
HPV31	L2	39	8	TTIADQIL		14396
HPV31	L2	39	10	TTIADQILRY		14397
HPV31	L2	426	8	TPQVSIF		14398
HPV31	L2	344	9	TTSTLNDGL		14399
HPV31	L2	344	10	TTSTLNDGLY		14400
HPV31	L2	343	10	TTSTLNDGL		14401
HPV31	L2	343	11	TTSTLNDGLY		14402
HPV31	L2	391	9	TTVPLSTGF		14403
HPV31	L2	391	11	TTVPLSTGFDI		14404
HPV31	L2	254	8	TVNAEESL		14405
HPV31	L2	254	9	TVNAEESLY		14406
HPV31	L2	254	10	TVNAEESLYF		14407
HPV31	L2	392	8	TVPLSTGF		14408
HPV31	L2	392	10	TVPLSTGFDI		14409
HPV31	L2	81	9	TVSEASIP		14410
HPV31	L2	53	8	VFFGGLGI		14411
HPV31	L2	32	10	VIPKIEHTI		14412
HPV31	L2	262	9	YFSNTSHNI		14413
HPV31	L2	440	8	YLHPSYYM		14414
HPV31	L2	440	9	YLHPSYYML		14415
HPV31	L2	386	10	YVPTNTTIVPL		14416
HPV31	L2	319	8	YYDISSI		14417
HPV31	L2	319	8	YYDISSI		14418
HPV33	E1	452	9	AFKKFLKGI		14419
HPV33	E1	448	9	AFLGAFKKF		14420
HPV33	E1	448	10	AFLGAFKKFL		14421
HPV33	E1	384	11	AFLKSNSQAKI		14422
HPV33	E1	596	10	AINDENWKSF		14423
HPV33	E1	596	11	AINDENWKSFF		14423

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E1	532	9	ALDGNESI		14424
HPV33	E1	546	10	ALVQLKCPPL		14425
HPV33	E1	546	11	ALVQLKCPPLL		14426
HPV33	E1	311	9	ALYWFRTAM		14427
HPV33	E1	81	9	AVCALKRKF		14428
HPV33	E1	22	11	AVIERTGDNI		14429
HPV33	E1	207	9	AYGISFMEL		14430
HPV33	E1	259	8	CLTCDRGI		14431
HPV33	E1	259	9	CLTCDRGII		14432
HPV33	E1	259	10	CLTCDRGIII		14433
HPV33	E1	259	11	CLTCDRGIIL		14434
HPV33	E1	297	9	CMVIEPPKL		14435
HPV33	E1	226	9	CTDWCITGY		14436
HPV33	E1	226	11	CTDWCITGYGI		14437
HPV33	E1	14	11	CTGWFEVEAVI		14438
HPV33	E1	118	8	CTYRKRKI		14439
HPV33	E1	118	11	CTYRKRKIDEL		14440
HPV33	E1	494	8	CVNSKSHF		14441
HPV33	E1	494	9	CVNSKSHFW		14442
HPV33	E1	494	10	CVNSKSHFWL		14443
HPV33	E1	367	9	DIAYY AOL		14444
HPV33	E1	46	10	DLLEFIDDSM		14445
HPV33	E1	78	8	DLNAVCAL		14446
HPV33	E1	349	8	DLSEMVQW		14447
HPV33	E1	349	10	DLSEMVQWAY		14448
HPV33	E1	62	8	DTEAARAL		14449
HPV33	E1	62	9	DTEAARALF		14450
HPV33	E1	62	11	DTEAARALFNI		14451
HPV33	E1	541	10	DVKHRALVQL		14452
HPV33	E1	324	9	DVQGTTP EW		14453
HPV33	E1	324	10	DVQGTTP EWI		14454
HPV33	E1	516	9	DVTPISWTY		14455
HPV33	E1	516	10	DVTPISWTYI		14456
HPV33	E1	228	9	DWCITGYGI		14457
HPV33	E1	49	11	EFIDDSMENSI		14458
HPV33	E1	580	8	EFKNPEPF		14459
HPV33	E1	445	9	EFTAF LGAF		14460
HPV33	E1	537	11	EISIDVKHRAL		14461
HPV33	E1	361	8	ELTDDSDI		14462
HPV33	E1	361	10	ELTDDSDIAY		14463
HPV33	E1	361	11	ELTDDSDIAYY		14464
HPV33	E1	352	11	EMVQWAYDNEI		14465
HPV33	E1	38	10	ETADDSGTDL		14466
HPV33	E1	38	11	ETADDSGTDL		14467
HPV33	E1	295	11	ETCMVIEPPKL		14468
HPV33	E1	331	9	EWIDRLTVL		14469

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E1	605	9	FFSRTWCKL		14470
HPV33	E1	605	11	FFSRTWCKLDL		14471
HPV33	E1	50	10	FIDDSMENS		14472
HPV33	E1	449	8	FLGAFKKF		14473
HPV33	E1	449	9	FLGAFKKFL		14474
HPV33	E1	456	11	FLKGIPKSCM		14475
HPV33	E1	385	10	FLKSNSQAKI		14476
HPV33	E1	212	8	FMELVRPF		14477
HPV33	E1	446	8	FTAFLGAF		14478
HPV33	E1	446	11	FTAFLGAFKKF		14479
HPV33	E1	501	11	FWLQPLSDAKI		14480
HPV33	E1	265	8	GIILLJI		14481
HPV33	E1	265	10	GIILLLIRF		14482
HPV33	E1	459	8	GIPKSCM		14483
HPV33	E1	459	9	GIPKSCML		14484
HPV33	E1	459	10	GIPKSCMLI		14485
HPV33	E1	209	11	GISFMELVRPF		14486
HPV33	E1	235	10	GISPSVAESL		14487
HPV33	E1	11	8	GMGCTGWF		14488
HPV33	E1	512	9	GMIDDVTP		14489
HPV33	E1	512	11	GMIDDVTPISW		14490
HPV33	E1	480	8	GMSLIQFL		14491
HPV33	E1	44	8	GTDLLEFI		14492
HPV33	E1	564	8	GTDSRWPY		14493
HPV33	E1	564	9	GTDSRWPYL		14494
HPV33	E1	327	10	GTTPEWIDRL		14495
HPV33	E1	16	9	GWEFEAVI		14496
HPV33	E1	256	11	HLQCLTCDRGI		14497
HPV33	E1	404	10	HYKKAERKM		14498
HPV33	E1	347	10	IFDLSEMVQW		14499
HPV33	E1	266	9	IIILLIRF		14500
HPV33	E1	267	8	IIILLIRF		14501
HPV33	E1	200	9	ILYKFKEAY		14502
HPV33	E1	200	11	ILYKFKEAYGI		14503
HPV33	E1	394	8	IVKDCGIM		14504
HPV33	E1	435	10	IVQLRYQNI		14505
HPV33	E1	203	8	KFKEAYGI		14506
HPV33	E1	203	10	KFKEAYGISF		14507
HPV33	E1	203	11	KFKEAYGISFM		14508
HPV33	E1	124	10	KIDEEDSGY		14509
HPV33	E1	510	11	KIGMIDDVTP		14510
HPV33	E1	393	8	KIVKDCGI		14511
HPV33	E1	393	9	KIVKDCGIM		14512
HPV33	E1	285	9	KLMSNLSI		14513
HPV33	E1	304	9	KLRSQTCAL		14514
HPV33	E1	304	10	KLRSQTCALY		14515

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E1	304	11	KLSQTALYW		14516
HPV33	E1	412	8	KMSIGQWI		14517
HPV33	E1	425	8	KTNDGGNW		14518
HPV33	E1	425	11	KTNDGGNWRPI		14519
HPV33	E1	223	9	KTCTDWCi		14520
HPV33	E1	245	9	KVLKQHSI		14521
HPV33	E1	245	10	KVLKQHSLY		14522
HPV33	E1	69	11	LFNIQEGEDDL		14523
HPV33	E1	247	8	LIKQHSLY		14524
HPV33	E1	247	11	LIKQHSLYTHL		14525
HPV33	E1	483	10	LIQFLKGCVI		14526
HPV33	E1	271	11	LIRFRCSKNRL		14527
HPV33	E1	47	9	LLEFIDDSM		14528
HPV33	E1	438	9	LLRYQNIIEF		14529
HPV33	E1	290	9	LLSIPETCM		14530
HPV33	E1	290	11	LLSIPETCMVI		14531
HPV33	E1	286	8	LMSNLLSI		14532
HPV33	E1	260	8	LTCDRGII		14533
HPV33	E1	260	9	LTCDRGIII		14534
HPV33	E1	260	10	LTCDRGIIIL		14535
HPV33	E1	260	11	LTCDRGIIILL		14536
HPV33	E1	362	9	LTDDSDIAY		14537
HPV33	E1	362	10	LTDDSDIAYY		14538
HPV33	E1	362	11	LTDDSDIAYYY		14539
HPV33	E1	281	10	LTVAKLMSNL		14540
HPV33	E1	281	11	LTVAKLMSNLL		14541
HPV33	E1	576	10	LTVFEFKNPF		14542
HPV33	E1	336	8	LTVLQHSF		14543
HPV33	E1	547	9	LVQLKCPPL		14544
HPV33	E1	547	10	LVQLKCPPLL		14545
HPV33	E1	547	11	LVQLKCPPLLL		14546
HPV33	E1	201	8	LYKFKEAY		14547
HPV33	E1	201	10	LYKFKEAYGI		14548
HPV33	E1	253	8	LYTILQCL		14549
HPV33	E1	312	8	LYWERTAM		14550
HPV33	E1	312	11	LYWERTAMSNi		14551
HPV33	E1	513	8	MDDVTPi		14552
HPV33	E1	513	10	MDDVTPISW		14553
HPV33	E1	298	8	MVIEPPKL		14554
HPV33	E1	353	10	MVQWAYDNEL		14555
HPV33	E1	443	8	NIEFTAFI		14556
HPV33	E1	443	11	NIEFTAFIAGAF		14557
HPV33	E1	346	8	NIFDLSEM		14558
HPV33	E1	346	11	NIFDLSEMVQW		14559
HPV33	E1	199	10	NILYKFKEAY		14560
HPV33	E1	71	9	NIQEGEDDL		14561

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E1	289	10	NLLSIPETCM		14562
HPV33	E1	135	9	NTEVETQQM		14563
HPV33	E1	473	9	NTGKSYFGM		14564
HPV33	E1	473	11	NTGKSYFGMSL		14565
HPV33	E1	195	8	NTKANILY		14566
HPV33	E1	195	10	NTKANILYKF		14567
HPV33	E1	560	10	NTNAGTDSRW		14568
HPV33	E1	175	10	NVDSCENVTL		14569
HPV33	E1	181	11	NVTLQEISNVL		14570
HPV33	E1	601	10	NWKSFFSRTW		14571
HPV33	E1	431	8	NWRPIVQL		14572
HPV33	E1	431	9	NWRPIVQLL		14573
HPV33	E1	431	11	NWRPIVQLRLY		14574
HPV33	E1	586	10	PFDEGNPVY		14575
HPV33	E1	519	10	PISWTYIDDY		14576
HPV33	E1	519	11	PISWTYIDDYM		14577
HPV33	E1	434	8	PIVQLRLY		14578
HPV33	E1	434	11	PIVQLRLYQNI		14579
HPV33	E1	505	9	PLSDAKIGM		14580
HPV33	E1	505	10	PLSDAKIGMI		14581
HPV33	E1	593	10	PVYAINDENW		14582
HPV33	E1	570	10	PYLHSRLTVF		14583
HPV33	E1	485	8	QFLKGCVI		14584
HPV33	E1	549	8	QLKCPPLL		14585
HPV33	E1	549	9	QLKCPPLLL		14586
HPV33	E1	437	8	QLRLYQNI		14587
HPV33	E1	437	10	QLRLYQNIIEF		14588
HPV33	E1	308	8	QTCALYWF		14589
HPV33	E1	146	11	QVESQNGDTNL		14590
HPV33	E1	355	8	QWAYDNEL		14591
HPV33	E1	273	9	RFRCSKNRL		14592
HPV33	E1	280	8	RLTVAKLM		14593
HPV33	E1	280	11	RLTVAKLMSNL		14594
HPV33	E1	575	11	RLTVFEKPNPF		14595
HPV33	E1	335	9	RLTVLQHSF		14596
HPV33	E1	608	8	RTWCKLDL		14597
HPV33	E1	608	9	RTWCKLDLI		14598
HPV33	E1	568	9	RWPYLHSRL		14599
HPV33	E1	440	10	RYQNIETAF		14600
HPV33	E1	440	11	RYQNIETAFI		14601
HPV33	E1	604	10	SFFSRTWCKL		14602
HPV33	E1	211	9	SFMELVRPF		14603
HPV33	E1	342	9	SFNDNIFDL		14604
HPV33	E1	539	9	SIDVKIHAL		14605
HPV33	E1	111	10	SINKNKECTY		14606
HPV33	E1	292	9	SIPETCMVI		14607

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. id. No.
HPV33	E1	482	11	SLIQFLKGCVI		14608
HPV33	E1	243	11	SLKVLIKQHSL		14609
HPV33	E1	252	9	SLYTHLQCL		14610
HPV33	E1	239	9	SVAESLKV		14611
HPV33	E1	239	10	SVAESLKVLI		14612
HPV33	E1	521	8	SWTYIDDDY		14613
HPV33	E1	521	9	SWTYIDDDYM		14614
HPV33	E1	477	8	SYFGMSLI		14615
HPV33	E1	477	10	SYFGMSLIQF		14616
HPV33	E1	477	11	SYFGMSLIQFL		14617
HPV33	E1	183	9	TLQEISNVL		14618
HPV33	E1	328	9	TTPEWIDRL		14619
HPV33	E1	282	9	TVAKLMSNL		14620
HPV33	E1	282	10	TVAKLMSNLL		14621
HPV33	E1	577	9	TVFEKPNPF		14622
HPV33	E1	577	11	TVFEKPNPF		14623
HPV33	E1	337	11	TVLQHSFNDNI		14624
HPV33	E1	609	8	TWCKLDLI		14625
HPV33	E1	523	11	TYIDDYMRNAL		14626
HPV33	E1	119	10	TYRKRKIDEL		14627
HPV33	E1	578	8	VFEKPNPF		14628
HPV33	E1	578	10	VFEKPNPF		14629
HPV33	E1	23	10	VIERRTGDN		14630
HPV33	E1	491	11	VISCVNSKSHF		14631
HPV33	E1	190	11	VLISSNTKANI		14632
HPV33	E1	246	8	VLIKQHSL		14633
HPV33	E1	246	9	VLIKQHSLY		14634
HPV33	E1	338	10	VLQHSFNDNI		14635
HPV33	E1	338	11	VLQHSFNDNIF		14636
HPV33	E1	182	10	VLQEISNVL		14637
HPV33	E1	517	8	VTPISWTY		14638
HPV33	E1	517	9	VTPISWTYI		14639
HPV33	E1	594	9	VYAINDENW		14640
HPV33	E1	17	8	WFEVEAVI		14641
HPV33	E1	314	9	WFTAMNSI		14642
HPV33	E1	332	8	WIDRLTVL		14643
HPV33	E1	502	10	WLQPLSDAKI		14644
HPV33	E1	522	8	WTYIDDDY		14645
HPV33	E1	478	9	YFGMSLIQF		14646
HPV33	E1	478	10	YFGMSLIQFL		14647
HPV33	E1	524	10	YIDDYMRNAL		14648
HPV33	E1	571	9	YLIISRLTVF		14649
HPV33	E1	571	11	YLIISRLTVFEF		14650
HPV33	E1	528	11	YMRNALDGNEL		14651
HPV33	E1	313	10	YWFTAMNSI		14652
HPV33	E2	69	9	AFQVIELQM		14653

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E2	69	11	AFQVIELQMAL		14654
HPV33	E2	78	10	ALETLSKSQY		14655
HPV33	E2	41	9	ALLYTAKQM		14656
HPV33	E2	41	11	ALLYTAKQMGF		14657
HPV33	E2	10	9	AVQEKILDY		14658
HPV33	E2	10	10	AVQEKILDLY		14659
HPV33	E2	288	9	CLRYRLKPY		14660
HPV33	E2	145	10	CTMVTGKVDY		14661
HPV33	E2	145	11	CTMVTGKVDYI		14662
HPV33	E2	25	9	DLPSQIEHW		14663
HPV33	E2	25	11	DLPSQIEHWKL		14664
HPV33	E2	17	10	DLYEADKTDL		14665
HPV33	E2	235	9	DTAQPLTKL		14666
HPV33	E2	235	10	DTAQPLTKLF		14667
HPV33	E2	232	9	DTTDTAQPL		14668
HPV33	E2	153	8	DYIGMYI		14669
HPV33	E2	130	8	DYTNWGEI		14670
HPV33	E2	130	9	DYTNWGEIY		14671
HPV33	E2	130	10	DYTNWGEIYI		14672
HPV33	E2	130	11	DYTNWGEIYII		14673
HPV33	E2	74	9	ELQMALET		14674
HPV33	E2	298	10	ELYSSMSSTW		14675
HPV33	E2	80	8	ETLSKSQY		14676
HPV33	E2	185	9	EVHVGQGI		14677
HPV33	E2	100	11	EVWLCEPKCF		14678
HPV33	E2	325	9	FVTEQQQQM		14679
HPV33	E2	325	10	FVTEQQQQMF		14680
HPV33	E2	325	11	FVTEQQQQMFL		14681
HPV33	E2	336	11	GTVKIPTVQI		14682
HPV33	E2	53	10	HLCHQVVPSL		14683
HPV33	E2	53	11	HLCHQVVPSLL		14684
HPV33	E2	278	9	HLKGESNL		14685
HPV33	E2	32	11	HWKLIRMECAL		14686
HPV33	E2	139	9	IIEDTCTM		14687
HPV33	E2	276	11	IVHLKGESNSL		14688
HPV33	E2	137	11	IYIIEDTCTM		14689
HPV33	E2	339	8	KIPTVQI		14690
HPV33	E2	242	9	KLFCADPAL		14691
HPV33	E2	34	9	KLIRMECAL		14692
HPV33	E2	34	10	KLIRMECALL		14693
HPV33	E2	34	11	KLIRMECALLY		14694
HPV33	E2	23	8	KTDLPSTQI		14695
HPV33	E2	23	11	KTDLPSTQIEHW		14696
HPV33	E2	66	8	KTKAFQVI		14697
HPV33	E2	66	10	KTKAFQVIEL		14698
HPV33	E2	151	8	KVDYIGMY		14699

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E2	151	9	KVDYIGMYI		14700
HPV33	E2	151	10	KVDYIGMYII		14701
HPV33	E2	169	10	KYFKEDAAY		14702
HPV33	E2	177	8	KYSKTQMW		14703
HPV33	E2	243	8	LFCADPAL		14704
HPV33	E2	35	8	LIRMECAL		14705
HPV33	E2	35	9	LIRMECALL		14706
HPV33	E2	35	10	LIRMECALLY		14707
HPV33	E2	62	9	LLASKTKAF		14708
HPV33	E2	42	8	LLYTAKQM		14709
HPV33	E2	42	10	LLYTAKQMGF		14710
HPV33	E2	240	11	LTKLFCADPAL		14711
HPV33	E2	18	9	LYEADKTDL		14712
HPV33	E2	299	9	LYSSMSSTW		14713
HPV33	E2	299	11	LYSSMSSTWHW		14714
HPV33	E2	43	9	LYTAKQMGF		14715
HPV33	E2	333	8	MFLGTVKI		14716
HPV33	E2	147	8	MVTGKVDY		14717
HPV33	E2	147	9	MVTGKVDYI		14718
HPV33	E2	147	11	MVTGKVDYIGM		14719
HPV33	E2	183	11	MWEVHVGGQVI		14720
HPV33	E2	157	11	MYIHINCEKVI		14721
HPV33	E2	127	8	NTMDYTNW		14722
HPV33	E2	127	11	NTMDYTNWGEI		14723
HPV33	E2	272	8	NVAPIVHL		14724
HPV33	E2	133	8	NWGEIYI		14725
HPV33	E2	196	9	PTSISSNQI		14726
HPV33	E2	342	9	PTVQISTGF		14727
HPV33	E2	342	10	PTVQISTGFM		14728
HPV33	E2	295	9	PYKELYSSM		14729
HPV33	E2	29	8	QIEHWKLI		14730
HPV33	E2	29	10	QIEHWKLIRM		14731
HPV33	E2	345	9	QISTGFMTL		14732
HPV33	E2	203	10	QISTTETADI		14733
HPV33	E2	332	9	QMFLGTVKI		14734
HPV33	E2	96	8	QTSLEVL		14735
HPV33	E2	71	9	QVIELQMAL		14736
HPV33	E2	191	9	QVIVCPTSI		14737
HPV33	E2	91	9	QWTLQQTSL		14738
HPV33	E2	120	10	QYDNDKKNTM		14739
HPV33	E2	86	9	QYSTSQWTL		14740
HPV33	E2	292	8	RLKPYKEL		14741
HPV33	E2	292	9	RLKPYKELY		14742
HPV33	E2	7	9	RLNAVQEKI		14743
HPV33	E2	7	10	RLNAVQEKIL		14744
HPV33	E2	37	8	RMECALLY		14745

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E2	266	11	RTVCSSNVAPI		14746
HPV33	E2	290	10	RYRLKPYKEL		14747
HPV33	E2	290	11	RYRLKPYKELY		14748
HPV33	E2	285	9	SLKCLRYRL		14749
HPV33	E2	61	10	SLASKTKAF		14750
HPV33	E2	302	8	SMSSTWHW		14751
HPV33	E2	205	8	STTETADI		14752
HPV33	E2	324	10	TFVTEQQQQM		14753
HPV33	E2	324	11	TFVTEQQQQMF		14754
HPV33	E2	93	10	TLQQTSLVW		14755
HPV33	E2	93	11	TLQQTSLVWL		14756
HPV33	E2	128	10	TMDYTNWGEI		14757
HPV33	E2	128	11	TMDYTNWGEIY		14758
HPV33	E2	146	9	TMVTGKVDY		14759
HPV33	E2	146	10	TMVTGKVDYI		14760
HPV33	E2	233	8	TTDTAQPL		14761
HPV33	E2	233	11	TTDTAQPLTKL		14762
HPV33	E2	267	10	TVCSSNVAPI		14763
HPV33	E2	337	10	TVKIPPTVQI		14764
HPV33	E2	343	8	TVQISTGF		14765
HPV33	E2	343	9	TVQISTGEM		14766
HPV33	E2	343	11	TVQISTGEMTL		14767
HPV33	E2	72	8	VIELQMAL		14768
HPV33	E2	72	11	VIELQMALETI		14769
HPV33	E2	192	8	VIVCPTSI		14770
HPV33	E2	326	8	VTEQQQQM		14771
HPV33	E2	326	9	VTEQQQQMF		14772
HPV33	E2	326	10	VTEQQQQMFL		14773
HPV33	E2	323	11	VTFVTEQQQQM		14774
HPV33	E2	148	8	VTGKVDYI		14775
HPV33	E2	148	10	VTGKVDYIGM		14776
HPV33	E2	148	11	VTGKVDYIGMY		14777
HPV33	E2	101	10	VWLCEPPKCF		14778
HPV33	E2	102	9	WLCEPPKCF		14779
HPV33	E2	92	8	WTLOQTSI		14780
HPV33	E2	92	11	WTLOQTSLEVW		14781
HPV33	E2	170	9	YFKEDAAKY		14782
HPV33	E2	159	9	YIHNCEKVY		14783
HPV33	E2	159	10	YIHNCEKVYF		14784
HPV33	E2	138	10	YIIEEDTCM		14785
HPV33	E2	44	8	YTAKQMGF		14786
HPV33	E2	44	11	YTAKQMGFSHL		14787
HPV33	E2	131	8	YTNWGEIY		14788
HPV33	E2	131	9	YTNWGEIYI		14789
HPV33	E2	131	10	YTNWGEIYII		14790
HPV33	E2	158	10	YYIHNCEKVY		14791

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E2	158	11	YYIHNEKVVYF		14792
HPV33	E5	30	8	AWLLVLVL		14793
HPV33	E5	30	9	AWLLVLVL		14794
HPV33	E5	30	10	AWLLVLVLL		14795
HPV33	E5	30	11	AWLLVLVLLW		14796
HPV33	E5	8	8	CFILFLCL		14797
HPV33	E5	8	10	CFILFLCLSL		14798
HPV33	E5	8	11	CFILFLCLSL		14799
HPV33	E5	63	9	CINFIAQHM		14800
HPV33	E5	14	9	CLSLLRPL		14801
HPV33	E5	14	10	CLSLLRPLI		14802
HPV33	E5	14	11	CLSLLRPLIL		14803
HPV33	E5	52	8	CYLLFLYL		14804
HPV33	E5	52	10	CYLLFLYLPM		14805
HPV33	E5	52	11	CYLLFLYLPMM		14806
HPV33	E5	50	8	FFCYLLFL		14807
HPV33	E5	50	9	FFCYLLFLY		14808
HPV33	E5	50	10	FFCYLLFLYL		14809
HPV33	E5	9	9	FILFLCLSL		14810
HPV33	E5	9	10	FILFLCLSL		14811
HPV33	E5	9	11	FILFLCLSL		14812
HPV33	E5	12	8	FLCLSL		14813
HPV33	E5	12	11	FLCLSLRPL		14814
HPV33	E5	56	9	FLYLPMMCI		14815
HPV33	E5	56	11	FLYLPMMCINF		14816
HPV33	E5	3	8	FVFVLCHI		14817
HPV33	E5	3	9	FVFVLCHIL		14818
HPV33	E5	3	10	FVFVLCHILF		14819
HPV33	E5	3	11	FVFVLCHILFL		14820
HPV33	E5	42	8	FVGSPLKI		14821
HPV33	E5	42	9	FVGSPLKIF		14822
HPV33	E5	42	10	FVGSPLKIFF		14823
HPV33	E5	5	8	FVLCFILF		14824
HPV33	E5	5	9	FVLCFILFL		14825
HPV33	E5	5	11	FVLCFILFLCL		14826
HPV33	E5	49	8	IFCYLLF		14827
HPV33	E5	49	9	IFCYLLFL		14828
HPV33	E5	49	10	IFCYLLFLY		14829
HPV33	E5	49	11	IFCYLLFLYL		14830
HPV33	E5	2	8	IFVFLCF		14831
HPV33	E5	2	9	IFVFLCFI		14832
HPV33	E5	2	10	IFVFLCFIL		14833
HPV33	E5	2	11	IFVFLCFILF		14834
HPV33	E5	10	8	ILFLCLSL		14835
HPV33	E5	10	9	ILFLCLSL		14836
HPV33	E5	10	10	ILFLCLSL		14837

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E5	23	9	ILSISTYAW		14838
HPV33	E5	23	10	ILSISTYAWL		14839
HPV33	E5	23	11	ILSISTYAWLL		14840
HPV33	E5	48	8	KIFFCYLL		14841
HPV33	E5	48	9	KIFFCYLLF		14842
HPV33	E5	48	10	KIFFCYLLFL		14843
HPV33	E5	48	11	KIFFCYLLFLY		14844
HPV33	E5	11	8	LFLCLSL		14845
HPV33	E5	11	9	LFLCLSLLL		14846
HPV33	E5	55	8	LFLYLPMM		14847
HPV33	E5	55	10	LFLYLPMMCI		14848
HPV33	E5	22	8	LILSISTY		14849
HPV33	E5	22	10	LILSISTYAW		14850
HPV33	E5	22	11	LILSISTYAWL		14851
HPV33	E5	54	8	LLFLYLPM		14852
HPV33	E5	54	9	LLFLYLPM		14853
HPV33	E5	54	11	LLFLYLPMCI		14854
HPV33	E5	17	8	LLRPLIL		14855
HPV33	E5	17	10	LLRPLILSI		14856
HPV33	E5	37	11	LLWVFGSPL		14857
HPV33	E5	18	9	LLRPLILSI		14858
HPV33	E5	32	8	LLVLVLL		14859
HPV33	E5	32	9	LLVLVLLLW		14860
HPV33	E5	32	11	LLVLVLLLWVF		14861
HPV33	E5	38	10	LLWVFGSPL		14862
HPV33	E5	35	8	LVLLWVF		14863
HPV33	E5	33	8	LVVLW		14864
HPV33	E5	33	10	LVVLWVF		14865
HPV33	E5	39	9	LWVFGSPL		14866
HPV33	E5	39	11	LWVFGSPLKI		14867
HPV33	E5	57	8	LYLPMCI		14868
HPV33	E5	57	10	LYLPMCI		14869
HPV33	E5	1	9	MIFVFLCF		14870
HPV33	E5	1	10	MIFVFLCFI		14871
HPV33	E5	1	11	MIFVFLCFIL		14872
HPV33	E5	61	11	MMCINFAQHIM		14873
HPV33	E5	21	9	PLILSISTY		14874
HPV33	E5	21	11	PLILSISTYAW		14875
HPV33	E5	46	8	PLKIFFCY		14876
HPV33	E5	46	9	PLKIFFCYL		14877
HPV33	E5	46	10	PLKIFFCYLL		14878
HPV33	E5	46	11	PLKIFFCYLLF		14879
HPV33	E5	25	8	SISTYAWL		14880
HPV33	E5	25	9	SISTYAWL		14881
HPV33	E5	25	11	SISTYAWLLVL		14882
HPV33	E5	16	8	SLLRPLI		14883

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E5	16	9	SLLRLPLIL		14884
HPV33	E5	16	11	SLLRLPLILSI		14885
HPV33	E5	27	9	STYAWLLVL		14886
HPV33	E5	27	11	STYAWLLVLL		14887
HPV33	E5	28	8	TYAWLLVL		14888
HPV33	E5	28	10	TYAWLLVLL		14889
HPV33	E5	28	11	TYAWLLVLLL		14890
HPV33	E5	41	9	VFVGSPLKI		14891
HPV33	E5	41	10	VFVGSPLKIF		14892
HPV33	E5	41	11	VFVGSPLKIFF		14893
HPV33	E5	4	8	VFVLCFIL		14894
HPV33	E5	4	9	VFVLCFILF		14895
HPV33	E5	4	10	VFVLCFILFL		14896
HPV33	E5	6	8	VLCFILFL		14897
HPV33	E5	6	10	VLCFILFLCL		14898
HPV33	E5	34	9	VLVLLLVWF		14899
HPV33	E5	31	8	WLLVLLVL		14900
HPV33	E5	31	9	WLLVLLVLL		14901
HPV33	E5	31	10	WLLVLLVLLW		14902
HPV33	E5	40	8	WVFGSPL		14903
HPV33	E5	40	10	WVFGSPLKI		14904
HPV33	E5	40	11	WVFGSPLKIF		14905
HPV33	E5	53	9	YLLFLYLP		14906
HPV33	E5	53	10	YLLFLYLPMM		14907
HPV33	E5	58	9	YLPMMCNF		14908
HPV33	E6	46	9	AFADLTVVY		14909
HPV33	E6	18	9	ALETHINI		14910
HPV33	E6	18	11	ALETHINIEL		14911
HPV33	E6	103	8	CIICQRPL		14912
HPV33	E6	66	8	CLRFLSKI		14913
HPV33	E6	66	11	CLRFLSKISEY		14914
HPV33	E6	30	8	CVECKKPL		14915
HPV33	E6	139	11	CWRSRRRETAL		14916
HPV33	E6	44	11	DFAFADLTVVY		14917
HPV33	E6	14	10	DLCQALETTI		14918
HPV33	E6	120	9	DINKRFHNI		14919
HPV33	E6	4	9	DTECKPRTL		14920
HPV33	E6	98	8	EILIRCH		14921
HPV33	E6	27	11	ELQCVECKKPL		14922
HPV33	E6	20	9	ETTIINIEL		14923
HPV33	E6	41	10	EVYDFAFADL		14924
HPV33	E6	75	10	EYRHYNYSVY		14925
HPV33	E6	69	8	FLSKISEY		14926
HPV33	E6	69	11	FLSKISEYRHY		14927
HPV33	E6	61	9	GICKLCLRF		14928
HPV33	E6	61	10	GICKLCLRFL		14929

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E6	118	8	HVDLNKRF		14930
HPV33	E6	118	11	HVDLNKRFINI		14931
HPV33	E6	78	11	HYNSVYGNL		14932
HPV33	E6	72	8	KISEYRHY		14933
HPV33	E6	72	10	KISEYRHYNY		14934
HPV33	E6	64	10	KLCLRFLSKI		14935
HPV33	E6	100	11	LIRCHICQRPL		14936
HPV33	E6	50	11	LTVVYREGNPF		14937
HPV33	E6	86	11	NTLEQTVKKPL		14938
HPV33	E6	80	9	NYSVYGNL		14939
HPV33	E6	59	9	PFICKLCL		14940
HPV33	E6	59	11	PFICKLCLRF		14941
HPV33	E6	95	10	PLNEILIRCI		14942
HPV33	E6	95	11	PLNEILIRCH		14943
HPV33	E6	36	8	PLQRSEVY		14944
HPV33	E6	36	10	PLQRSEVYDF		14945
HPV33	E6	90	10	QTVKKPLNEI		14946
HPV33	E6	90	11	QTVKKPLNEIL		14947
HPV33	E6	124	9	RHNISGRW		14948
HPV33	E6	68	9	RFLSKISEY		14949
HPV33	E6	10	10	RTLHDLQAL		14950
HPV33	E6	131	10	RWAGRCAACW		14951
HPV33	E6	87	10	TLHDLCQAL		14952
HPV33	E6	11	9	TLHDLCQAL		14953
HPV33	E6	21	8	TTHNIEL		14954
HPV33	E6	91	9	TVKKPLNEI		14955
HPV33	E6	91	10	TVKKPLNEIL		14956
HPV33	E6	91	11	TVKKPLNEILI		14957
HPV33	E6	51	10	TVVYREGNPF		14958
HPV33	E6	52	9	VVYREGNPF		14959
HPV33	E6	52	11	VVYREGNPFGI		14960
HPV33	E6	42	9	VYDFAFADL		14961
HPV33	E6	53	8	VYREGNPF		14962
HPV33	E6	53	10	VYREGNPFGI		14963
HPV33	E7	68	9	CVNSTASDL		14964
HPV33	E7	75	8	DLRTIQQL		14965
HPV33	E7	75	9	DLRTIQQLL		14966
HPV33	E7	75	10	DLRTIQQLLM		14967
HPV33	E7	21	8	DLYCYEQL		14968
HPV33	E7	14	9	DLYPEPTDL		14969
HPV33	E7	14	10	DLYPEPTDLY		14970
HPV33	E7	59	9	HTCNTTVRL		14971
HPV33	E7	82	8	LLMGTVNI		14972
HPV33	E7	15	8	LYPEPTDL		14973
HPV33	E7	15	9	LYPEPTDLY		14974
HPV33	E7	15	11	LYPEPTDLYCY		14975

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E7	19	10	PTDLYCYEQL		14976
HPV33	E7	6	8	PTLKEYVL		14977
HPV33	E7	6	10	PTLKEYVLDL		14978
HPV33	E7	6	11	PTLKEYVLDLY		14979
HPV33	E7	81	9	QLLMGTNI		14980
HPV33	E7	66	11	RLCVNSTASDL		14981
HPV33	E7	77	8	RTIQQLM		14982
HPV33	E7	71	9	STASDLRTI		14983
HPV33	E7	7	9	TLKEYVLDL		14984
HPV33	E7	7	10	TLKEYVLDLY		14985
HPV33	E7	12	11	VLDLYPEPTDL		14986
HPV33	E7	290	10	AFPTPSGSM		14987
HPV33	L1	392	10	AMNPDILEDW		14988
HPV33	L1	44	9	AVGHPYFSI		14989
HPV33	L1	270	8	AVPDDLVI		14990
HPV33	L1	147	11	CLSM DYKQTQL		14991
HPV33	L1	345	10	CTQVTSSTY		14992
HPV33	L1	223	9	DICGSTCKY		14993
HPV33	L1	396	8	DILEDWQF		14994
HPV33	L1	396	10	DILEDWQFGL		14995
HPV33	L1	457	11	DLDQFPLGRKF		14996
HPV33	L1	449	10	DLKEKFSADL		14997
HPV33	L1	370	8	DLQFVFQL		14998
HPV33	L1	199	10	DMVDTGFGCM		14999
HPV33	L1	129	8	DTETGNKY		15000
HPV33	L1	202	9	DTGFGCMDF		15001
HPV33	L1	335	8	DTTRSTNM		15002
HPV33	L1	335	10	DTTRSTNMTL		15003
HPV33	L1	415	11	DTYRFVTSQAI		15004
HPV33	L1	151	9	DYKQTQLCL		15005
HPV33	L1	151	10	DYKQTQLCLL		15006
HPV33	L1	233	10	DYKMTSEPY		15007
HPV33	L1	107	8	EIGRGQPL		15008
HPV33	L1	447	8	EVDLKEKF		15009
HPV33	L1	385	9	EVMTYIHAM		15010
HPV33	L1	368	8	EYDLQFVF		15011
HPV33	L1	368	10	EYDLQFVFL		15012
HPV33	L1	361	9	EYIRHVEEY		15013
HPV33	L1	361	11	EYIRHVEEYDL		15014
HPV33	L1	26	8	EYVSRTSI		15015
HPV33	L1	26	9	EYVSRTSIY		15016
HPV33	L1	26	10	EYVSRTSIYY		15017
HPV33	L1	26	11	EYVSRTSIYY		15018
HPV33	L1	247	9	FFFLRREQM		15019
HPV33	L1	247	10	FFFLRREQMF		15020
HPV33	L1	248	8	FELRREQM		15021

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L1	248	9	FFLRREQMF		15022
HPV33	L1	260	8	FFNRAGTL		15023
HPV33	L1	291	9	FFPTPSGSM		15024
HPV33	L1	249	8	FLRREQMF		15025
HPV33	L1	373	10	FVQLCKVTL		15026
HPV33	L1	445	10	FWEVDLKEKF		15027
HPV33	L1	91	9	FYNPDQRL		15028
HPV33	L1	91	11	FYNPDQRLVW		15029
HPV33	L1	204	10	GFGCMDFKTL		15030
HPV33	L1	85	8	GFPDTSFY		15031
HPV33	L1	322	9	GICWGNQVF		15032
HPV33	L1	117	8	GISGHPLL		15033
HPV33	L1	117	11	GISGHPLLNKF		15034
HPV33	L1	105	10	GLEIGRGQPL		15035
HPV33	L1	472	8	GLKAKPKL		15036
HPV33	L1	68	11	GLQYRVFRVRL		15037
HPV33	L1	404	10	GLTPPPSASL		15038
HPV33	L1	265	11	GTLGEAVPDDL		15039
HPV33	L1	281	11	GTTASIQSSAF		15040
HPV33	L1	115	9	GVGISGHPL		15041
HPV33	L1	115	10	GVGISGHPLL		15042
HPV33	L1	259	9	HFFNRAGTL		15043
HPV33	L1	365	9	HVEEYDLQF		15044
HPV33	L1	365	11	HVEEYDLQFVF		15045
HPV33	L1	397	9	ILEDWQFGL		15046
HPV33	L1	33	10	IYYYAGSSRL		15047
HPV33	L1	33	11	IYYYAGSSRLL		15048
HPV33	L1	126	11	KFDDTETGNKY		15049
HPV33	L1	83	9	KFGFPDTSF		15050
HPV33	L1	83	10	KFGFPDTSFY		15051
HPV33	L1	466	8	KFLQAGL		15052
HPV33	L1	453	9	KFSADLDQF		15053
HPV33	L1	453	11	KFSADLDQFPL		15054
HPV33	L1	60	10	KLLVPKVSGL		15055
HPV33	L1	236	11	KMTSEPYGDSL		15056
HPV33	L1	65	10	KVSGLOQYRVF		15057
HPV33	L1	379	9	KVTLTAEVM		15058
HPV33	L1	379	11	KVTLTAEVMTY		15059
HPV33	L1	20	8	KVSTDEY		15060
HPV33	L1	230	8	KYPDYLKM		15061
HPV33	L1	442	9	KYTFWEVDL		15062
HPV33	L1	246	10	LFFLRREQM		15063
HPV33	L1	246	11	LFFLRREQMF		15064
HPV33	L1	306	8	LFNKPYWL		15065
HPV33	L1	190	11	LINTIEDGDM		15066
HPV33	L1	42	8	LLAVGHYPY		15067

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L1	42	9	LLAVGHPYF		15068
HPV33	L1	42	11	LLAVGHPYFSI		15069
HPV33	L1	61	9	LLVPKVSGL		15070
HPV33	L1	61	11	LLVPKVSGLQY		15071
HPV33	L1	382	8	LTAEVMTY		15072
HPV33	L1	382	9	LTAEVMTYI		15073
HPV33	L1	405	9	LTPPPASL		15074
HPV33	L1	62	8	LVPKVSGL		15075
HPV33	L1	62	10	LVPKVSGLQY		15076
HPV33	L1	99	8	LVWACVGL		15077
HPV33	L1	99	10	LVWACVGLEI		15078
HPV33	L1	237	10	MTSEPYGDSL		15079
HPV33	L1	237	11	MTSEPYGDSL		15080
HPV33	L1	387	11	MTYIHAMNPD		15081
HPV33	L1	200	9	MVDTGFGCM		15082
HPV33	L1	200	11	MVDTGFGCMD		15083
HPV33	L1	299	8	MVTSESQ		15084
HPV33	L1	299	9	MVTSESQ		15085
HPV33	L1	192	9	NTIHDGDM		15086
HPV33	L1	221	11	PIDICGSTCKY		15087
HPV33	L1	187	8	PLELINTI		15088
HPV33	L1	187	9	PLELINTI		15089
HPV33	L1	439	8	PLGKYTFW		15090
HPV33	L1	462	8	PLGRKFLL		15091
HPV33	L1	113	11	PLGVGISGHP		15092
HPV33	L1	55	8	PTNAKKLL		15093
HPV33	L1	17	11	PVSKVVSTDEY		15094
HPV33	L1	241	8	PYGDSLFF		15095
HPV33	L1	241	9	PYGDSLFFF		15096
HPV33	L1	241	10	PYGDSLFFFL		15097
HPV33	L1	460	8	QFPLGRKF		15098
HPV33	L1	460	9	QFPLGRKFL		15099
HPV33	L1	460	10	QFPLGRKFL		15100
HPV33	L1	372	11	QFVFLCKVTL		15101
HPV33	L1	305	8	QLFNKPYW		15102
HPV33	L1	305	9	QLFNKPYWL		15103
HPV33	L1	254	8	QMFVRHFF		15104
HPV33	L1	347	8	QVTSSTY		15105
HPV33	L1	70	9	QYRFRVRL		15106
HPV33	L1	418	8	RFVTSQAI		15107
HPV33	L1	41	9	RLAVGHPI		15108
HPV33	L1	41	10	RLAVGHPIY		15109
HPV33	L1	77	8	RLPDNKF		15110
HPV33	L1	77	10	RLPDNKF		15111
HPV33	L1	98	9	RLVWACVGL		15112
HPV33	L1	98	11	RLVWACVGLEI		15113

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L1	75	10	RVRLDPNKF		15114
HPV33	L1	90	10	SFYNPDTQRL		15115
HPV33	L1	51	11	SIKNPTNAKKL		15116
HPV33	L1	285	8	SIQSSAFF		15117
HPV33	L1	32	11	SIYYAGSSRL		15118
HPV33	L1	245	11	SLFFFLRRQM		15119
HPV33	L1	412	8	SLQDTYRF		15120
HPV33	L1	149	9	SMDYKQTQL		15121
HPV33	L1	149	11	SMDYKQTQLCL		15122
HPV33	L1	298	9	SMVTESQL		15123
HPV33	L1	298	10	SMVTESQLF		15124
HPV33	L1	227	8	STCKYPDY		15125
HPV33	L1	227	9	STCKYPDYL		15126
HPV33	L1	227	11	STCKYPDYLKM		15127
HPV33	L1	23	11	STDEYVSRISI		15128
HPV33	L1	352	8	STYKNENF		15129
HPV33	L1	352	11	STYKNENFKEY		15130
HPV33	L1	2	11	SVWRPSEATVY		15131
HPV33	L1	444	11	TFWEVDLKEKF		15132
HPV33	L1	193	8	TIEDGDM		15133
HPV33	L1	266	10	TLGEAVPDDL		15134
HPV33	L1	266	11	TLGEAVPDDL		15135
HPV33	L1	212	11	TLQANKSDVPI		15136
HPV33	L1	381	9	TLTAEVMTY		15137
HPV33	L1	381	10	TLTAEVMTYI		15138
HPV33	L1	282	10	TTASIQSSAF		15139
HPV33	L1	282	11	TTASIQSSAFF		15140
HPV33	L1	336	9	TTRSTNMTL		15141
HPV33	L1	430	11	TVPPKEKEDPL		15142
HPV33	L1	332	11	TVVDTTRSTNM		15143
HPV33	L1	388	10	TYHAMNPDI		15144
HPV33	L1	388	11	TYHAMNPDI		15145
HPV33	L1	353	10	TYKNENFKEY		15146
HPV33	L1	353	11	TYKNENFKEYI		15147
HPV33	L1	416	10	TYRFVTSQAI		15148
HPV33	L1	374	9	VFQLCKVTL		15149
HPV33	L1	386	8	VMTYIHAM		15150
HPV33	L1	380	8	VTLTAEVM		15151
HPV33	L1	380	10	VTLTAEVMTY		15152
HPV33	L1	380	11	VTLTAEVMTYI		15153
HPV33	L1	300	8	VTSESQLF		15154
HPV33	L1	333	10	VVDTRSTNM		15155
HPV33	L1	100	9	VWACVGLI		15156
HPV33	L1	3	10	VWRPSEATVY		15157
HPV33	L1	3	11	VWRPSEATVYL		15158
HPV33	L1	389	9	YHAMNPDI		15159

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L1	389	10	YIIAMNPDL		15160
HPV33	L1	276	11	YIKSGTTASI		15161
HPV33	L1	362	8	YIRHVEEY		15162
HPV33	L1	362	10	YIRHVEEYDL		15163
HPV33	L1	234	9	YLKMTSEPY		15164
HPV33	L1	443	8	YTFWEVDL		15165
HPV33	L1	27	8	YVSRTSIY		15166
HPV33	L1	27	9	YVSRTSIYY		15167
HPV33	L1	27	10	YVSRTSIYYY		15168
HPV33	L1	35	8	YYAGSSRL		15169
HPV33	L1	35	9	YYAGSSRL		15170
HPV33	L1	34	9	YYYAGSSRL		15171
HPV33	L1	34	10	YYYAGSSRL		15172
HPV33	L2	256	11	AFESFDPEDTL		15173
HPV33	L2	241	9	AFLTSPHKL		15174
HPV33	L2	241	10	AFLTSPHKL		15175
HPV33	L2	291	11	AITSRRHITVRF		15176
HPV33	L2	23	10	ATGTCPPDVI		15177
HPV33	L2	308	11	ATLKTRSGKQI		15178
HPV33	L2	385	10	ATTRTSNVSI		15179
HPV33	L2	280	8	DFLDIAL		15180
HPV33	L2	439	8	DFVLHPSY		15181
HPV33	L2	439	9	DFVLHPSYF		15182
HPV33	L2	439	10	DFVLHPSYFI		15183
HPV33	L2	439	11	DFVLHPSYFIL		15184
HPV33	L2	283	10	DIALHRPAI		15185
HPV33	L2	272	10	DISPAPDPDF		15186
HPV33	L2	272	11	DISPAPDPDFL		15187
HPV33	L2	327	8	DLSPIVPL		15188
HPV33	L2	431	10	DTIVVDGADF		15189
HPV33	L2	264	10	DTLQFQHSDI		15190
HPV33	L2	401	10	DTPVMSGPDI		15191
HPV33	L2	350	9	DTSTSSYSI		15192
HPV33	L2	95	10	DTVGPLDSSI		15193
HPV33	L2	369	9	DVDNVHTPM		15194
HPV33	L2	30	11	DVIPKVEGSTI		15195
HPV33	L2	113	11	FIEAGAPAPSI		15196
HPV33	L2	447	10	FILRRRRKRF		15197
HPV33	L2	242	8	FLTSPHKL		15198
HPV33	L2	242	9	FLTSPHKL		15199
HPV33	L2	242	11	FLTSPHKLITY		15200
HPV33	L2	440	8	FVLHPSYF		15201
HPV33	L2	440	9	FVLHPSYFI		15202
HPV33	L2	440	10	FVLHPSYFIL		15203
HPV33	L2	421	8	FVPISPF		15204
HPV33	L2	421	10	FVPISPFPP		15205

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L2	25	8	GTCPPDVI		15206
HPV33	L2	75	9	GTDPTAAI		15207
HPV33	L2	75	11	GTDPTAAIPL		15208
HPV33	L2	51	9	GVFFGGLGI		15209
HPV33	L2	374	8	HTPMQHSY		15210
HPV33	L2	374	11	HTPMQHSYSTF		15211
HPV33	L2	336	8	HTVPNEQY		15212
HPV33	L2	336	10	HTVPNEQYEL		15213
HPV33	L2	323	9	HYQQDLSPI		15214
HPV33	L2	284	9	IALLHRPAI		15215
HPV33	L2	44	10	ILKYGSLGVF		15216
HPV33	L2	44	11	ILKYGSLGVFF		15217
HPV33	L2	448	9	ILRRRRKRF		15218
HPV33	L2	448	11	ILRRRRKRFPY		15219
HPV33	L2	292	10	ITSRHIVRF		15220
HPV33	L2	250	8	ITYDNPAF		15221
HPV33	L2	250	11	ITYDNPAFESF		15222
HPV33	L2	104	10	IVSLIEETSF		15223
HPV33	L2	104	11	IVSLIEETSH		15224
HPV33	L2	433	8	IVVDGADF		15225
HPV33	L2	433	10	IVVDGADFVL		15226
HPV33	L2	248	10	KLITYDNPAF		15227
HPV33	L2	311	8	KTRSGKQI		15228
HPV33	L2	34	11	KVEGSTIADQI		15229
HPV33	L2	236	8	KVVDPAFL		15230
HPV33	L2	46	8	KYGSLGVF		15231
HPV33	L2	46	9	KYGSLGVFF		15232
HPV33	L2	414	8	LPTSSPF		15233
HPV33	L2	414	11	LPTSSPFVPI		15234
HPV33	L2	107	8	LIEETSH		15235
HPV33	L2	249	9	LITYDNPAF		15236
HPV33	L2	243	8	LTSPHKLI		15237
HPV33	L2	243	10	LTSPHKLITY		15238
HPV33	L2	397	9	NTGFDTPVM		15239
HPV33	L2	372	10	NVHTPMQHSY		15240
HPV33	L2	391	10	NVSIPLNTGF		15241
HPV33	L2	143	10	NVSSVGESSI		15242
HPV33	L2	209	8	NVTSSSTPI		15243
HPV33	L2	426	8	PFPPFDTI		15244
HPV33	L2	420	8	PFVPISPF		15245
HPV33	L2	420	9	PFVPISPFF		15246
HPV33	L2	420	11	PFVPISPFFPF		15247
HPV33	L2	73	11	PIGTDPTAAI		15248
HPV33	L2	215	11	PIGSRPVARL		15249
HPV33	L2	423	8	PISPFEPF		15250
HPV33	L2	423	11	PISPFPPFDTI		15251

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L2	333	11	PLDHTVPNEQY		15252
HPV33	L2	99	9	PLDSSIVSL		15253
HPV33	L2	99	10	PLDSSIVSLI		15254
HPV33	L2	413	9	PLFTSSPF		15255
HPV33	L2	347	10	PLHDTSTSSY		15256
HPV33	L2	395	11	PLNTGFDTPVM		15257
HPV33	L2	376	9	PMQHSYSTF		15258
HPV33	L2	79	10	PTAAIPLQPI		15259
HPV33	L2	161	9	PTFTEPSVL		15260
HPV33	L2	416	9	PTSSPFVPI		15261
HPV33	L2	186	8	PTVSTQSY		15262
HPV33	L2	186	11	PTVSTQSYENI		15263
HPV33	L2	221	8	PVARLGLY		15264
HPV33	L2	403	8	PVMSGPDI		15265
HPV33	L2	91	10	PVTVDIVGPL		15266
HPV33	L2	317	8	QIGARIHY		15267
HPV33	L2	317	9	QIGARIHY		15268
HPV33	L2	43	8	QILKYGSL		15269
HPV33	L2	43	11	QILKYGSLGVF		15270
HPV33	L2	153	11	QTISTHLNPTF		15271
HPV33	L2	234	9	QVKVVDPAF		15272
HPV33	L2	234	10	QVKVVDPAFL		15273
HPV33	L2	300	11	RFSRVGQKATL		15274
HPV33	L2	321	8	RIHYQQDL		15275
HPV33	L2	321	11	RIHYQQDLSPI		15276
HPV33	L2	388	9	RTSNVSIPL		15277
HPV33	L2	303	8	RVGQKATL		15278
HPV33	L2	259	8	SFDPEDTL		15279
HPV33	L2	259	10	SFDPEDTLQF		15280
HPV33	L2	357	10	SINDGLYDVY		15281
HPV33	L2	393	8	SIPLNTGF		15282
HPV33	L2	122	8	SIPTPSGF		15283
HPV33	L2	151	9	SIQTISTHL		15284
HPV33	L2	103	11	SIVSLIETSF		15285
HPV33	L2	49	9	SLGVFFGGL		15286
HPV33	L2	49	11	SLGVFFGGGLGI		15287
HPV33	L2	106	8	SLIETSF		15288
HPV33	L2	106	9	SLIETSF		15289
HPV33	L2	156	8	STHLNPTF		15290
HPV33	L2	38	8	STIADQIL		15291
HPV33	L2	38	10	STIADQILKY		15292
HPV33	L2	189	8	STQSYENI		15293
HPV33	L2	189	10	STQSYENIPM		15294
HPV33	L2	352	11	STSSYSINDGL		15295
HPV33	L2	146	10	SVGESSIONI		15296
HPV33	L2	192	10	SYENIPMDTF		15297

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L2	355	8	SYSINDGL		15298
HPV33	L2	355	9	SYSINDGLY		15299
HPV33	L2	162	8	TFTEPSVL		15300
HPV33	L2	39	9	TIADQILKY		15301
HPV33	L2	154	10	TISTHLNPTF		15302
HPV33	L2	432	9	TIVVDGADF		15303
HPV33	L2	432	11	TIVVDGADFVL		15304
HPV33	L2	309	10	TLKTRSGKQI		15305
HPV33	L2	265	9	TLQFQHSDI		15306
HPV33	L2	386	9	TTRTSNVSI		15307
HPV33	L2	386	11	TTRTSNVSIPL		15308
HPV33	L2	132	10	TTSADITPAI		15309
HPV33	L2	132	11	TTSADITPAII		15310
HPV33	L2	93	8	TVDTVGPL		15311
HPV33	L2	96	9	TVGPLDSSI		15312
HPV33	L2	337	9	TVPNEQYEL		15313
HPV33	L2	187	10	TVSTQSYENI		15314
HPV33	L2	251	10	TYDNPAFESF		15315
HPV33	L2	52	8	VFFGGLGI		15316
HPV33	L2	31	10	VIPKVEOSTI		15317
HPV33	L2	441	8	VLHPSYFI		15318
HPV33	L2	441	9	VLHPSYFIL		15319
HPV33	L2	404	11	VMSGPDIPSPL		15320
HPV33	L2	131	11	VTSADITPAI		15321
HPV33	L2	92	9	VTVDTVGPL		15322
HPV33	L2	434	9	VVDGADFVL		15323
HPV33	L2	446	11	YFILRRRRKRF		15324
HPV33	L2	324	8	YYQDLSPI		15325
HPV33	L2	324	11	YYQDLSPIVPL		15326
HPV45	E1	384	11	AFLKSNQCQAKY		15327
HPV45	E1	532	9	ALDGNPISI		15328
HPV45	E1	311	9	ALYWYRTGI		15329
HPV45	E1	199	9	AMLAVFKDI		15330
HPV45	E1	199	10	AMLAVFKDIY		15331
HPV45	E1	512	11	AMLDADATHTCW		15332
HPV45	E1	40	8	ATDTGSDM		15333
HPV45	E1	40	11	ATDTGSDMVD		15334
HPV45	E1	517	8	ATHTCWTY		15335
HPV45	E1	517	9	ATHTCWTYF		15336
HPV45	E1	251	10	ATLYAHIQCL		15337
HPV45	E1	202	9	AVFKDIYGL		15338
HPV45	E1	202	11	AVFKDIYGLSF		15339
HPV45	E1	604	10	CFFERTWSRL		15340
HPV45	E1	259	9	CLDCKWGL		15341
HPV45	E1	259	10	CLDCKWGLI		15342
HPV45	E1	259	11	CLDCKWGLIL		15343

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E1	297	9	CMLIEPPKL		15344
HPV45	E1	226	8	CTDWVMAI		15345
HPV45	E1	226	9	CTDWVMAIF		15346
HPV45	E1	634	10	CVTGQNTPL		15347
HPV45	E1	521	8	CWTFYFDNY		15348
HPV45	E1	521	9	CWTFYFDNYM		15349
HPV45	E1	49	9	DFDTQLSI		15350
HPV45	E1	206	10	DIYGLSFTDL		15351
HPV45	E1	349	8	DLSDMVQW		15352
HPV45	E1	349	10	DLSDMVQWAF		15353
HPV45	E1	108	9	DLSPRLQEI		15354
HPV45	E1	108	11	DLSPRLQEISL		15355
HPV45	E1	361	8	DLTDESDM		15356
HPV45	E1	361	10	DLTDESDMAF		15357
HPV45	E1	367	9	DMAFYAQL		15358
HPV45	E1	46	10	DMVDFIDTQL		15359
HPV45	E1	352	11	DMVQWAFDNDL		15360
HPV45	E1	106	8	DTDLSPRL		15361
HPV45	E1	106	11	DTDLSPRLQEI		15362
HPV45	E1	623	10	DTGIPFGTF		15363
HPV45	E1	42	9	DTGSDMVDF		15364
HPV45	E1	42	10	DTGSDMVDFI		15365
HPV45	E1	328	9	DTPEWQRL		15366
HPV45	E1	328	11	DTPEWQRLTI		15367
HPV45	E1	431	8	DWRPIVQF		15368
HPV45	E1	431	9	DWRPIVQFL		15369
HPV45	E1	431	11	DWRPIVQFLRY		15370
HPV45	E1	445	9	EFISFLRAL		15371
HPV45	E1	596	10	EINDKNWKCF		15372
HPV45	E1	596	11	EINDKNWKCF		15373
HPV45	E1	38	10	ETATDTGSDM		15374
HPV45	E1	295	11	ETCMLIEPPKL		15375
HPV45	E1	74	9	EVQNDAAQVL		15376
HPV45	E1	74	11	EVQNDAAQVLHL		15377
HPV45	E1	324	9	EVSGDTPEW		15378
HPV45	E1	324	10	EVSGDTPEWI		15379
HPV45	E1	331	8	EWIQRLLTI		15380
HPV45	E1	331	9	EWIQRLLTH		15381
HPV45	E1	605	9	FFERTWSRL		15382
HPV45	E1	605	11	FFERTWSRLDL		15383
HPV45	E1	50	8	FIDTQLSI		15384
HPV45	E1	483	9	FIHFLQGAI		15385
HPV45	E1	483	10	FIHFLQGAII		15386
HPV45	E1	446	8	FISFLRAL		15387
HPV45	E1	446	11	FISFLRALKEF		15388
HPV45	E1	456	11	FLKGTPKKNCI		15389

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV45	E1	385	10	FLKSNCOAKY	15390
HPV45	E1	385	11	FLKSNCOAKYL	15391
HPV45	E1	486	9	FLQGAISF	15392
HPV45	E1	449	8	FLRALKEF	15393
HPV45	E1	449	9	FLRALKEFL	15394
HPV45	E1	438	9	FLRYQGVF	15395
HPV45	E1	438	10	FLRYQGVFEI	15396
HPV45	E1	212	8	FTDLVRNF	15397
HPV45	E1	579	9	FTFPHAPPF	15398
HPV45	E1	130	8	FTISDSGY	15399
HPV45	E1	494	8	FVNSNSHF	15400
HPV45	E1	494	9	FVNSNSHFW	15401
HPV45	E1	494	10	FVNSNSHFWL	15402
HPV45	E1	243	11	GFKTLIKPATL	15403
HPV45	E1	342	9	GIDDSNFDL	15404
HPV45	E1	209	11	GLSFTDLVRNF	15405
HPV45	E1	480	8	GMSFIHEL	15406
HPV45	E1	11	8	GTGNGWFF	15407
HPV45	E1	11	9	GTGNGWFF	15408
HPV45	E1	459	8	GTPKKNCI	15409
HPV45	E1	459	9	GTPKKNCIL	15410
HPV45	E1	459	10	GTPKKNCILL	15411
HPV45	E1	459	11	GTPKKNCILLY	15412
HPV45	E1	443	8	GVEFISFL	15413
HPV45	E1	443	11	GVEFISFLRAL	15414
HPV45	E1	265	8	GVLILALL	15415
HPV45	E1	265	10	GVLILALLRY	15416
HPV45	E1	235	10	GVNPTVAEGF	15417
HPV45	E1	16	8	GWFFVETI	15418
HPV45	E1	485	8	HFLQGAIL	15419
HPV45	E1	485	10	HFLQGAISF	15420
HPV45	E1	256	9	HIQCLDCKW	15421
HPV45	E1	519	10	HTCWTFYFDNY	15422
HPV45	E1	519	11	HTCWTFYFDNYM	15423
HPV45	E1	292	8	HVPETCML	15424
HPV45	E1	292	9	HVPETCMLI	15425
HPV45	E1	404	10	HYKRAQKRQM	15426
HPV45	E1	338	11	IIQHIGDDSNF	15427
HPV45	E1	491	11	IISFVNSNSHF	15428
HPV45	E1	184	8	ITELKELL	15429
HPV45	E1	23	10	IVEKKTGDVI	15430
HPV45	E1	207	9	IYGLSFTDL	15431
HPV45	E1	425	8	KIDEGGDW	15432
HPV45	E1	425	11	KIDEGGDWRPI	15433
HPV45	E1	304	9	KLRSSVAAL	15434
HPV45	E1	304	10	KLRSSVAALY	15435

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E1	304	11	KLRSSVAALYW		15436
HPV45	E1	245	9	KTLIKPATL		15437
HPV45	E1	245	10	KTLIKPATLY		15438
HPV45	E1	223	9	KTTCTDWVM		15439
HPV45	E1	223	11	KTTCTDWVMAI		15440
HPV45	E1	263	9	KWGVILAL		15441
HPV45	E1	263	10	KWGVILALL		15442
HPV45	E1	393	9	KYLKDCAVM		15443
HPV45	E1	129	9	LFTISDSGY		15444
HPV45	E1	247	8	LIKPATLY		15445
HPV45	E1	247	11	LIKPATLYAIII		15446
HPV45	E1	267	8	LILALLRY		15447
HPV45	E1	290	9	LLHVPETCM		15448
HPV45	E1	290	10	LLHVPETCML		15449
HPV45	E1	290	11	LLHVPETCMLI		15450
HPV45	E1	190	11	LLQASNKKAAM		15451
HPV45	E1	547	9	LLQLKCPPI		15452
HPV45	E1	547	10	LLQLKCPPII		15453
HPV45	E1	547	11	LLQLKCPPIII		15454
HPV45	E1	271	11	LLRYKCGKNRL		15455
HPV45	E1	362	9	LTDESMAF		15456
HPV45	E1	362	11	LTDESMAFQY		15457
HPV45	E1	336	8	LTIIQHGI		15458
HPV45	E1	281	10	LTVAKGLSTL		15459
HPV45	E1	281	11	LTVAKGLSTLL		15460
HPV45	E1	253	8	LYAHIQCL		15461
HPV45	E1	468	11	LYGPANTGKSY		15462
HPV45	E1	312	8	LYWYRTGI		15463
HPV45	E1	312	11	LYWYRTGISNI		15464
HPV45	E1	200	8	MLAVFKDI		15465
HPV45	E1	200	9	MLAVFKDIY		15466
HPV45	E1	200	11	MLAVFKDIYGL		15467
HPV45	E1	513	10	MLDDATHTCW		15468
HPV45	E1	298	8	MLIEPPKL		15469
HPV45	E1	47	9	MVDFIDTQL		15470
HPV45	E1	47	11	MVDFIDTQLSI		15471
HPV45	E1	353	10	MVQWAFDNDL		15472
HPV45	E1	347	10	NFDLSDMVQW		15473
HPV45	E1	560	10	NIDPAKDNKW		15474
HPV45	E1	414	8	NMSQWIKY		15475
HPV45	E1	473	9	NTGKSYFGM		15476
HPV45	E1	473	11	NTGKSYFGMSF		15477
HPV45	E1	177	8	NVDPICSI		15478
HPV45	E1	177	11	NVDPICSITEL		15479
HPV45	E1	601	10	NWKCFERTW		15480
HPV45	E1	586	10	PFDKNGNPVY		15481

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E1	554	8	PILLTSNI		15482
HPV45	E1	537	11	PISDRKHKPL		15483
HPV45	E1	434	8	PIVQFLRY		15484
HPV45	E1	505	9	PLADTKVAM		15485
HPV45	E1	505	10	PLADTKVAML		15486
HPV45	E1	546	10	PLLQLKCPPI		15487
HPV45	E1	546	11	PLLQLKCPPII		15488
HPV45	E1	238	10	PTVAEGFKTL		15489
HPV45	E1	238	11	PTVAEGFKTLI		15490
HPV45	E1	593	10	PVYEINDKNW		15491
HPV45	E1	570	10	PYLESRVTVF		15492
HPV45	E1	437	10	QFLRYQGVEF		15493
HPV45	E1	437	11	QFLRYQGVEFI		15494
HPV45	E1	549	8	QLKCPPII		15495
HPV45	E1	549	9	QLKCPPIII		15496
HPV45	E1	102	8	QLSVDIDL		15497
HPV45	E1	412	8	QNMMSQWI		15498
HPV45	E1	412	10	QNMMSQWIKY		15499
HPV45	E1	80	10	QVLHLKRRKF		15500
HPV45	E1	355	8	QWAFDNDL		15501
HPV45	E1	417	10	QWIKYRCSKI		15502
HPV45	E1	128	10	RFTISDSGY		15503
HPV45	E1	335	9	RLTIQHGI		15504
HPV45	E1	280	8	RLTVAKGL		15505
HPV45	E1	280	11	RLTVAKGLSTL		15506
HPV45	E1	608	8	RTWSRLDL		15507
HPV45	E1	575	11	RVTVFTFPHAF		15508
HPV45	E1	273	9	RYKCKNRL		15509
HPV45	E1	440	8	RYQGVEFI		15510
HPV45	E1	440	10	RYQGVEFISF		15511
HPV45	E1	440	11	RYQGVEFISFL		15512
HPV45	E1	482	10	SFIHFLQGAI		15513
HPV45	E1	482	11	SFIHFLQGAI		15514
HPV45	E1	448	9	SFLRALKEF		15515
HPV45	E1	448	10	SFLRALKEFL		15516
HPV45	E1	211	9	SFTDLVRNF		15517
HPV45	E1	493	9	SFVNSNSHF		15518
HPV45	E1	493	10	SFVNSNSHFW		15519
HPV45	E1	493	11	SFVNSNSHFWL		15520
HPV45	E1	539	9	SIDRKHKPL		15521
HPV45	E1	539	10	SIDRKHKPLI		15522
HPV45	E1	183	8	SITELKEL		15523
HPV45	E1	183	9	SITELKELI		15524
HPV45	E1	288	11	STLLHVPETCM		15525
HPV45	E1	308	8	SVAALYWY		15526
HPV45	E1	104	10	SVDTLSPL		15527

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E1	477	8	SYFGMSFI		15528
HPV45	E1	477	10	SYFGMSFIHF		15529
HPV45	E1	477	11	SYFGMSFIHFL		15530
HPV45	E1	580	8	TFPHAFPF		15531
HPV45	E1	22	11	TIVEKKTGDVI		15532
HPV45	E1	246	8	TLIKPATL		15533
HPV45	E1	246	9	TLIKPATLY		15534
HPV45	E1	289	10	TLLHVPETCM		15535
HPV45	E1	289	11	TLLHVPETCML		15536
HPV45	E1	252	9	TLYAHIQCL		15537
HPV45	E1	224	8	TTCTDWVM		15538
HPV45	E1	224	10	TTCTDWVMAI		15539
HPV45	E1	224	11	TTCTDWVMAIF		15540
HPV45	E1	239	9	TVAEGFKTL		15541
HPV45	E1	239	10	TVAEGFKTLI		15542
HPV45	E1	282	9	TVAKGLSTL		15543
HPV45	E1	282	10	TVAKGLSTLL		15544
HPV45	E1	577	9	TVTFPHAF		15545
HPV45	E1	577	11	TVTFPHAFPF		15546
HPV45	E1	523	11	TYFDNYMRNAL		15547
HPV45	E1	203	8	VFKDIYGL		15548
HPV45	E1	203	10	VFKDIYGLSF		15549
HPV45	E1	578	8	VTFPHAF		15550
HPV45	E1	578	10	VTFPHAFPF		15551
HPV45	E1	81	9	VLHLKRKF		15552
HPV45	E1	266	9	VLILALLRY		15553
HPV45	E1	635	9	VTGQNTPL		15554
HPV45	E1	576	10	VTVTFPHAF		15555
HPV45	E1	594	9	VYEINDKNW		15556
HPV45	E1	418	9	WIKYRCSKI		15557
HPV45	E1	332	8	WIQLTHI		15558
HPV45	E1	522	8	WTYFDNYM		15559
HPV45	E1	314	9	WYRTGISNI		15560
HPV45	E1	524	10	YFDNYMRNAL		15561
HPV45	E1	478	9	YFGMSFIHF		15562
HPV45	E1	478	10	YFGMSFIHFL		15563
HPV45	E1	571	9	YLESRVTF		15564
HPV45	E1	571	11	YLESRVTVTF		15565
HPV45	E1	394	8	YLKDCAVM		15566
HPV45	E1	528	11	YMRNALDGNPI		15567
HPV45	E1	313	10	YWYRTGISNI		15568
HPV45	E2	78	8	AIELQMAL		15569
HPV45	E2	78	11	AIELQMALKGL		15570
HPV45	E2	47	11	AILFTAREHGI		15571
HPV45	E2	84	10	ALKGLAQSKY		15572
HPV45	E2	16	10	ALQDKILDIY		15573

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E2	247	10	ATKRPRQCGL		15574
HPV45	E2	216	8	ATQIVRQL		15575
HPV45	E2	305	9	CLRYRLRY		15576
HPV45	E2	134	10	CMNYVVWDSI		15577
HPV45	E2	134	11	CMNYVVWDSIY		15578
HPV45	E2	158	8	CVSYWGVY		15579
HPV45	E2	158	9	CVSYWGVYY		15580
HPV45	E2	158	10	CVSYWGVYYI		15581
HPV45	E2	31	8	DINSQISY		15582
HPV45	E2	31	9	DINSQISYW		15583
HPV45	E2	31	11	DINSQISYWQL		15584
HPV45	E2	171	8	DTYYVQF		15585
HPV45	E2	212	8	DTVSAIQI		15586
HPV45	E2	351	11	DVVTIPNSVQI		15587
HPV45	E2	319	8	EISSTWHW		15588
HPV45	E2	80	9	ELQALKGL		15589
HPV45	E2	106	11	ELWNTEPSQCF		15590
HPV45	E2	343	8	EVQRNTFL		15591
HPV45	E2	192	9	EVQYGGNVI		15592
HPV45	E2	97	11	EWTLQDTCEEL		15593
HPV45	E2	50	8	FTAREHGI		15594
HPV45	E2	50	11	FTAREHIGITKL		15595
HPV45	E2	295	9	HLKGDKNL		15596
HPV45	E2	325	11	HWTCNKNTGI		15597
HPV45	E2	24	9	HYENDSKDI		15598
HPV45	E2	316	9	HYSEISSTW		15599
HPV45	E2	316	11	IYSEISSTWHW		15600
HPV45	E2	293	11	IHLKGDKNL		15601
HPV45	E2	48	10	ILFTAREHGI		15602
HPV45	E2	151	11	IWDKTAACVSY		15603
HPV45	E2	143	9	IYYITETGI		15604
HPV45	E2	143	10	IYYITETGIW		15605
HPV45	E2	59	10	KLNIQVVPPI		15606
HPV45	E2	2	9	KMQTPKESL		15607
HPV45	E2	154	8	KTAACVSY		15608
HPV45	E2	154	9	KTAACVSYW		15609
HPV45	E2	284	10	KVCSGNTTPI		15610
HPV45	E2	284	11	KVCSGNTTPII		15611
HPV45	E2	312	9	KYADHYSEI		15612
HPV45	E2	184	8	KYGNSTW		15613
HPV45	E2	92	9	KYNNEEWTI		15614
HPV45	E2	49	9	LFTAREHGI		15615
HPV45	E2	41	8	LIRLENAI		15616
HPV45	E2	41	9	LIRLENAIL		15617
HPV45	E2	41	10	LIRLENAILF		15618
HPV45	E2	107	10	LWNTEPSQCF		15619

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E2	69	11	NISKSAHIKAI		15620
HPV45	E2	109	8	NTEPSQCF		15621
HPV45	E2	347	9	NTFLDVVTI		15622
HPV45	E2	332	9	NTGILTVTY		15623
HPV45	E2	265	8	NTHVHNPL		15624
HPV45	E2	265	9	NTHVHNPLL		15625
HPV45	E2	289	8	NTPIHL		15626
HPV45	E2	198	9	NVIDCNSM		15627
HPV45	E2	136	8	NYVVWDSI		15628
HPV45	E2	136	9	NYVVWDSIY		15629
HPV45	E2	136	10	NYVVWDSIYY		15630
HPV45	E2	136	11	NYVVWDSIYI		15631
HPV45	E2	177	9	QFKSECEKY		15632
HPV45	E2	360	9	QISVGYMTI		15633
HPV45	E2	35	8	QISYWQLI		15634
HPV45	E2	35	10	QISYWQLIRL		15635
HPV45	E2	40	9	QLIRLENAI		15636
HPV45	E2	40	10	QLIRLENAIL		15637
HPV45	E2	40	11	QLIRLENAILF		15638
HPV45	E2	4	11	QTPKESLSERL		15639
HPV45	E2	63	8	QVVPPI		15640
HPV45	E2	43	8	RLENAILF		15641
HPV45	E2	309	9	RLRKYADHY		15642
HPV45	E2	13	9	RLSALQDKI		15643
HPV45	E2	13	10	RLSALQDKIL		15644
HPV45	E2	263	10	RVNTHVHNPL		15645
HPV45	E2	263	11	RVNTHVHNPLL		15646
HPV45	E2	307	11	RYRLRKYADHY		15647
HPV45	E2	142	10	SIYYITETGI		15648
HPV45	E2	142	11	SIYYITETGIW		15649
HPV45	E2	302	9	SLKCLRYRL		15650
HPV45	E2	9	9	SLSERLSAL		15651
HPV45	E2	235	9	SVGTPKPHI		15652
HPV45	E2	358	8	SVQISVGY		15653
HPV45	E2	358	9	SVQISVGYM		15654
HPV45	E2	358	11	SVQISVGYMTI		15655
HPV45	E2	160	8	SYWGVYI		15656
HPV45	E2	37	8	SYWQLIRL		15657
HPV45	E2	348	8	TFLDVVTI		15658
HPV45	E2	354	8	TIPNSVQI		15659
HPV45	E2	99	9	TLQDTCCEL		15660
HPV45	E2	99	10	TLQDTCCELW		15661
HPV45	E2	213	11	TVSATQIVRQL		15662
HPV45	E2	190	11	TWEVQYGGNVI		15663
HPV45	E2	339	11	TYNSEVQRNTF		15664
HPV45	E2	199	8	VIDCNSM		15665

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E2	353	9	VTIPNSVQI		15666
HPV45	E2	352	10	VVTIPNSVQI		15667
HPV45	E2	138	8	VVWDSIYY		15668
HPV45	E2	138	9	VVWDSIYYI		15669
HPV45	E2	139	8	VWDSIYYI		15670
HPV45	E2	125	11	VYFDGNKDNCM		15671
HPV45	E2	164	11	VYIKDGDTTY		15672
HPV45	E2	326	10	WTGCKNTGI		15673
HPV45	E2	326	11	WTGCKNTGIL		15674
HPV45	E2	98	10	WTLQDTCEEL		15675
HPV45	E2	98	11	WTLQDTCEELW		15676
HPV45	E2	126	10	YFDGNKDNCM		15677
HPV45	E2	166	9	YIKDGDTTY		15678
HPV45	E2	166	10	YIKDGDTTYI		15679
HPV45	E2	145	8	YITETGIW		15680
HPV45	E2	175	11	YVQFKSECEKY		15681
HPV45	E2	137	8	YVWDSIY		15682
HPV45	E2	137	9	YVWDSIYY		15683
HPV45	E2	137	10	YVWDSIYYI		15684
HPV45	E2	38	11	YVQLIRLENAI		15685
HPV45	E2	165	10	YIKDGDTTY		15686
HPV45	E2	165	11	YIKDGDTTYI		15687
HPV45	E2	144	8	YIITETGI		15688
HPV45	E2	144	9	YIITETGIW		15689
HPV45	E6	48	9	AFKDLFIY		15690
HPV45	E6	37	9	ATLERTEVY		15691
HPV45	E6	37	11	ATLERTEVYQF		15692
HPV45	E6	61	9	AYAACHKCI		15693
HPV45	E6	61	11	AYAACHKCIDF		15694
HPV45	E6	59	11	CIAYAACHKCI		15695
HPV45	E6	68	8	CIDFYSRI		15696
HPV45	E6	68	11	CIDFYSRIREL		15697
HPV45	E6	105	8	CLRCQKPL		15698
HPV45	E6	18	8	CTELNTSL		15699
HPV45	E6	32	8	CVYCKATL		15700
HPV45	E6	70	9	DFYSRIREL		15701
HPV45	E6	70	11	DFYSRIRELRY		15702
HPV45	E6	16	10	DLCTELNTSL		15703
HPV45	E6	51	10	DLFIVYRDCI		15704
HPV45	E6	27	8	DVSIACVY		15705
HPV45	E6	20	11	ELNTSLQDVSI		15706
HPV45	E6	77	10	ELRYYSNSVY		15707
HPV45	E6	97	10	ELYNLLIRCL		15708
HPV45	E6	88	11	ETLEKITNTSL		15709
HPV45	E6	43	10	EVYQFAFKDL		15710
HPV45	E6	43	11	EVYQFAFKDLF		15711

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E6	53	8	FIVYRDCI		15712
HPV45	E6	53	10	FIVYRDCIAY		15713
HPV45	E6	71	8	FYSRREL	0.0260	15714
HPV45	E6	71	10	FYSRRELRY		15715
HPV45	E6	71	11	FYSRRELRY		15716
HPV45	E6	120	8	HLKDKRRF		15717
HPV45	E6	120	11	HLKDKRRFHSI		15718
HPV45	E6	93	9	ITNTELYNL		15719
HPV45	E6	93	10	ITNTELYNLL		15720
HPV45	E6	93	11	ITNTELYNLLI		15721
HPV45	E6	54	9	IVYRDCIAY		15722
HPV45	E6	92	8	KITNTELY		15723
HPV45	E6	92	10	KITNTELYNL		15724
HPV45	E6	92	11	KITNTELYNLL		15725
HPV45	E6	13	9	KLPDLCTEL	0.0013	15726
HPV45	E6	52	9	LFIVYRDCI		15727
HPV45	E6	52	11	LFIVYRDCIAY		15728
HPV45	E6	102	11	LIRCLRCQKPL		15729
HPV45	E6	98	9	LYNLLIRCL	0.0001	15730
HPV45	E6	95	8	NTELYNLL		15731
HPV45	E6	95	9	NTELYNLLI		15732
HPV45	E6	22	9	NTSLQDVSI		15733
HPV45	E6	111	11	PLNPAEKRRHIL		15734
HPV45	E6	7	8	PTQRPYKL		15735
HPV45	E6	7	11	PTQRPYKLPDL		15736
HPV45	E6	11	11	PYKLPDLCTEL	0.0064	15737
HPV45	E6	46	8	QFAFKDLF		15738
HPV45	E6	46	9	QFAFKDLFI		15739
HPV45	E6	46	11	QFAFKDLFIVY		15740
HPV45	E6	3	10	RFDDPTQRPY		15741
HPV45	E6	126	9	RFHSIAGQY		15742
HPV45	E6	74	8	RIRELRY		15743
HPV45	E6	41	9	RTEVYQFAF		15744
HPV45	E6	79	8	RYYSNSVY		15745
HPV45	E6	29	11	SIACVYCKATL		15746
HPV45	E6	24	11	SLQDVSIACVY		15747
HPV45	E6	84	10	SVYGETLEKI		15748
HPV45	E6	89	10	TLEKITNTEL		15749
HPV45	E6	89	11	TLEKITNTELY		15750
HPV45	E6	38	8	TLERTEVY		15751
HPV45	E6	38	10	TLERTEVYQF		15752
HPV45	E6	85	9	VYGETLEKI		15753
HPV45	E6	44	9	VYQFAFKDL		15754
HPV45	E6	44	10	VYQFAFKDLF		15755
HPV45	E6	44	11	VYQFAFKDLFI		15756
HPV45	E6	55	8	VYRDCIAY		15757

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E6	80	11	YYSNSVYGETL		15758
HPV45	E7	6	8	ATLQEIVL		15759
HPV45	E7	6	10	ATLQEIVLHL		15760
HPV45	E7	64	10	CVCKCDGRI		15761
HPV45	E7	25	8	DLICYEQL		15762
HPV45	E7	83	8	DLRTLQQL		15763
HPV45	E7	83	9	DLRTLQQLF		15764
HPV45	E7	83	10	DLRTLQQLFL		15765
HPV45	E7	20	8	ELDPVDLL		15766
HPV45	E7	20	10	ELDPVDLLCY		15767
HPV45	E7	74	11	ELTVSSADDL		15768
HPV45	E7	91	11	FLSTLSFVCPW		15769
HPV45	E7	14	8	HLEPQNEL		15770
HPV45	E7	11	11	IVLHLEPQNEL		15771
HPV45	E7	90	8	LFLSTLSF		15772
HPV45	E7	75	10	LTVESSADDL		15773
HPV45	E7	23	10	PVDLLCYEQL		15774
HPV45	E7	89	9	QLFLSTLSF		15775
HPV45	E7	85	8	RTLQQLFL		15776
HPV45	E7	85	11	RTLQQLFLSTL		15777
HPV45	E7	93	9	STLSFVCPW		15778
HPV45	E7	7	9	TLQEIVLHL		15779
HPV45	E7	86	10	TLQQLFLSTL		15780
HPV45	E7	94	8	TLSFVCPW		15781
HPV45	E7	76	9	TVESSADDL		15782
HPV45	E7	12	10	VHLEPQNEL		15783
HPV45	L1	191	11	AIGEHWAKGTL		15784
HPV45	L1	103	8	ALPDPNKF		15785
HPV45	L1	103	10	ALPDPNKFGL		15786
HPV45	L1	28	11	ALWRPSDSTVY		15787
HPV45	L1	88	8	AVPKVSAY		15788
HPV45	L1	88	10	AVPKVSAYQY		15789
HPV45	L1	94	11	AYQYRVFRVAL		15790
HPV45	L1	184	9	CILGCVPAI		15791
HPV45	L1	276	8	CLRREQLF		15792
HPV45	L1	409	10	CTITLTAEVN		15793
HPV45	L1	188	9	CVPAIGEIIW		15794
HPV45	L1	318	11	CVYSPSPSGSI		15795
HPV45	L1	250	9	DICQSICKY		15796
HPV45	L1	488	11	DLQYPLGRKF		15797
HPV45	L1	480	10	DLKEKFSSDL		15798
HPV45	L1	401	8	DLQFIQFL		15799
HPV45	L1	401	11	DLQFIQFLCTI		15800
HPV45	L1	301	11	DLYIKGTSANM		15801
HPV45	L1	226	10	DMVDTGYGAM		15802
HPV45	L1	229	9	DTGYGAMDF		15803

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV45	L1	242	8	DTKCEVPL	15804
HPV45	L1	242	10	DTKCEVPLDI	15805
HPV45	L1	461	11	DTTPEKQDPY	15806
HPV45	L1	364	8	DTTRSTNL	15807
HPV45	L1	364	10	DTTRSTNLTL	15808
HPV45	L1	296	8	DTVPTDLY	15809
HPV45	L1	296	9	DTVPTDLYI	15810
HPV45	L1	169	10	DVRDNVSDY	15811
HPV45	L1	177	9	DYKQTQLCI	15812
HPV45	L1	177	10	DYKOTQLCIL	15813
HPV45	L1	260	10	DYLQMSADPY	15814
HPV45	L1	52	8	DYVSRISI	15815
HPV45	L1	52	9	DYVSRISIF	15816
HPV45	L1	52	10	DYVSRISIFY	15817
HPV45	L1	133	8	EIGRGQPL	15818
HPV45	L1	133	10	EIGRGQPLGI	15819
HPV45	L1	313	8	ETPGSCVY	15820
HPV45	L1	416	9	EVMSYIHSM	15821
HPV45	L1	246	10	EVPLDIQCSI	15822
HPV45	L1	399	8	EYDLQFIF	15823
HPV45	L1	399	10	EYDLQFIFQL	15824
HPV45	L1	274	9	FFCLRREQL	15825
HPV45	L1	274	10	FFCLRREQLF	15826
HPV45	L1	404	8	FIFQLCTII	15827
HPV45	L1	404	10	FIFQLCTITL	15828
HPV45	L1	14	8	FLKNVNVF	15829
HPV45	L1	14	10	FLKNVNVFPI	15830
HPV45	L1	14	11	FLKNVNVFPIF	15831
HPV45	L1	287	8	FWNRAGVM	15832
HPV45	L1	476	10	FWTVDLKEKF	15833
HPV45	L1	60	9	FYHAGSSRL	15834
HPV45	L1	60	10	FYHAGSSRLI	15835
HPV45	L1	351	8	GICWHNQL	15836
HPV45	L1	351	9	GICWHNQLF	15837
HPV45	L1	141	9	GIGLSGHPF	15838
HPV45	L1	141	10	GIGLSGHPFY	15839
HPV45	L1	111	8	GLPDSITI	15840
HPV45	L1	503	8	GLRRRPTI	15841
HPV45	L1	143	8	GLSGHPFY	15842
HPV45	L1	143	11	GLSGHPFYNNKL	15843
HPV45	L1	131	10	GMEIGRGQPL	15844
HPV45	L1	199	9	GTLCKPAQL	15845
HPV45	L1	292	11	GVMGDTVPTDL	15846
HPV45	L1	435	10	GVPPPTTSL	15847
HPV45	L1	231	10	GYGAMDFSTL	15848
HPV45	L1	286	9	IIFWNRAGVM	15849

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L1	396	9	HVEEYDLQF		15850
HPV45	L1	396	10	HVEEYDLQFI		15851
HPV45	L1	396	11	HVEEYDLQFIF		15852
HPV45	L1	392	9	HYSRHVEEY		15853
HPV45	L1	392	11	IYSRHVEEYDL		15854
HPV45	L1	13	9	IFLKNVNVF		15855
HPV45	L1	13	11	IFLKNVNVFPI		15856
HPV45	L1	23	8	IFLQMALW		15857
HPV45	L1	405	9	IFQLCTITL		15858
HPV45	L1	59	10	IFYHAGSSRL		15859
HPV45	L1	59	11	IFYHAGSSRL		15860
HPV45	L1	12	10	IFLKNVNVF		15861
HPV45	L1	11	11	IIFLKNVNVF		15862
HPV45	L1	5	8	IYGHGII		15863
HPV45	L1	5	9	IYGHGIII		15864
HPV45	L1	5	10	IYGHGIIIF		15865
HPV45	L1	5	11	IYGHGIIIFL		15866
HPV45	L1	185	8	ILGCVPAI		15867
HPV45	L1	411	8	ITLTAEVM		15868
HPV45	L1	411	10	ITLTAEVMSY		15869
HPV45	L1	411	11	ITLTAEVMSYI		15870
HPV45	L1	328	8	ITTSDSL		15871
HPV45	L1	328	9	ITTSDSLQF		15872
HPV45	L1	6	8	IYGHGII		15873
HPV45	L1	6	9	IYGHGIIIF		15874
HPV45	L1	6	10	IYGHGIIIFL		15875
HPV45	L1	117	9	IYNPETQRL		15876
HPV45	L1	117	11	IYNPETQRLVW		15877
HPV45	L1	109	9	KFGLPDSTI		15878
HPV45	L1	109	10	KFGLPDSTIY		15879
HPV45	L1	497	8	KFLVQAAGL		15880
HPV45	L1	484	9	KFSSDLQY		15881
HPV45	L1	484	11	KFSSDLQYPL		15882
HPV45	L1	475	11	KFWTVDLKEKF		15883
HPV45	L1	473	9	KLKFWTVDL		15884
HPV45	L1	91	10	KVSAYQYRVF		15885
HPV45	L1	257	8	KYPDYLQM		15886
HPV45	L1	335	8	LFNKPYWL		15887
HPV45	L1	68	8	LLTVGNPY		15888
HPV45	L1	68	9	LLTVGNPYF		15889
HPV45	L1	413	8	LTAEVMSY		15890
HPV45	L1	413	9	LTAEVMSYI		15891
HPV45	L1	69	8	LTVGNPYF		15892
HPV45	L1	125	8	LVWACVGM		15893
HPV45	L1	125	10	LVWACVGMEL		15894
HPV45	L1	29	10	LWRPSDSTVY		15895

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L1	29	11	LWRPSDSTVYL		15896
HPV45	L1	302	10	LYIKGTSANM		15897
HPV45	L1	273	10	MFCLRRREQL		15898
HPV45	L1	273	11	MFCLRRREQLF		15899
HPV45	L1	227	9	MVDTGYGAM		15900
HPV45	L1	227	11	MVDTGYGAMDF		15901
HPV45	L1	4	8	NIYGHGI		15902
HPV45	L1	4	9	NIYGHGII		15903
HPV45	L1	4	10	NIYGHGIII		15904
HPV45	L1	4	11	NIYGHGIIIF		15905
HPV45	L1	310	11	NMRETPGSCVY		15906
HPV45	L1	49	11	NTDDYVSRISI		15907
HPV45	L1	219	9	NTIEDGDM		15908
HPV45	L1	383	8	NTYDPTKF		15909
HPV45	L1	383	11	NTYDPTKFKHY		15910
HPV45	L1	19	9	NVFPFLQM		15911
HPV45	L1	19	11	NVFPFLQMAL		15912
HPV45	L1	17	8	NVNVFPIF		15913
HPV45	L1	17	9	NVNVFPIFL		15914
HPV45	L1	17	11	NVNVFPIFLQM		15915
HPV45	L1	173	11	NVSVDYKQTQL		15916
HPV45	L1	22	8	PIELQMAL		15917
HPV45	L1	22	9	PIELQMALW		15918
HPV45	L1	248	8	PLDICQSI		15919
HPV45	L1	248	11	PLDICQSICKY		15920
HPV45	L1	214	8	PLELKNIT		15921
HPV45	L1	214	9	PLELKNITI		15922
HPV45	L1	139	11	PLGILSGHPF		15923
HPV45	L1	440	9	PTTSLVDY		15924
HPV45	L1	440	11	PTTSLVDYTRF		15925
HPV45	L1	380	11	PVPNTYDPTKF		15926
HPV45	L1	470	8	PYDKLKF		15927
HPV45	L1	268	8	PYGDSMFF		15928
HPV45	L1	268	10	PYGDSMFFCL		15929
HPV45	L1	403	9	QFIFQLCTI		15930
HPV45	L1	403	11	QFIFQLCTITL		15931
HPV45	L1	182	11	QLCILGCVPAI		15932
HPV45	L1	281	8	QLFARHF		15933
HPV45	L1	334	8	QLFNKPYW		15934
HPV45	L1	334	9	QLFNKPYWL		15935
HPV45	L1	206	10	QLQPGDCPPL		15936
HPV45	L1	263	11	QMSADPYGDSM		15937
HPV45	L1	491	8	QYPLGRKF		15938
HPV45	L1	491	9	QYPLGRKFL		15939
HPV45	L1	96	9	QYRVFRVAL		15940
HPV45	L1	67	9	RLLTGPNPY		15941

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L1	67	10	RLLTVGNPYF		15942
HPV45	L1	124	9	RLVWACVGM		15943
HPV45	L1	124	11	RLVWACVGMEL		15944
HPV45	L1	101	10	RVALDPNKF		15945
HPV45	L1	46	8	RVVNTDDY		15946
HPV45	L1	254	8	SICKYPDY		15947
HPV45	L1	254	9	SICKYPDYL		15948
HPV45	L1	254	11	SICKYPDYLQM		15949
HPV45	L1	58	11	SIFYHAGSSRL		15950
HPV45	L1	427	8	SILENWNF		15951
HPV45	L1	327	9	SITSDSQL		15952
HPV45	L1	327	10	SITSDSQLF		15953
HPV45	L1	443	8	SLVDTYRF		15954
HPV45	L1	272	11	SMFFCLRREQL		15955
HPV45	L1	423	10	SMSSILENW		15956
HPV45	L1	115	11	STIYNPETQRL		15957
HPV45	L1	376	10	STQNPVPNTY		15958
HPV45	L1	43	11	SVARVNTDDY		15959
HPV45	L1	175	9	SVDYKQTQL		15960
HPV45	L1	175	11	SVDYKQTQLCI		15961
HPV45	L1	419	10	SYIHSMNSSI		15962
HPV45	L1	419	11	SYIHSMNSSIL		15963
HPV45	L1	220	8	TIEDGDM		15964
HPV45	L1	410	9	TITLTAEVM		15965
HPV45	L1	410	11	TITLTAEVMSY		15966
HPV45	L1	116	10	TIYNPETQRL		15967
HPV45	L1	200	8	TLCCKPAQL		15968
HPV45	L1	239	11	TLQDTKCEVPL		15969
HPV45	L1	412	9	TLTAEVMSY		15970
HPV45	L1	412	10	TLTAEVMSYI		15971
HPV45	L1	462	10	TTPPEKQDPY		15972
HPV45	L1	365	9	TTRSTNLT		15973
HPV45	L1	329	8	TTSDSQLF		15974
HPV45	L1	441	8	TTS�VDTY		15975
HPV45	L1	441	10	TTS�VDTYRF		15976
HPV45	L1	478	8	TVDLKEKF		15977
HPV45	L1	297	8	TVPTDLYI		15978
HPV45	L1	361	11	TVVDTTRSTNL		15979
HPV45	L1	384	10	TYDPTKFKHY		15980
HPV45	L1	20	8	VFPIFLQM		15981
HPV45	L1	20	10	VFPIFLQMAL		15982
HPV45	L1	20	11	VFPIFLQMALW		15983
HPV45	L1	293	10	VMGDTVPTDL		15984
HPV45	L1	293	11	VMGDTVPTDLY		15985
HPV45	L1	417	8	VMSYIISM		15986
HPV45	L1	362	10	VVDTTRSTNL		15987

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L1	126	9	VWACVGM EI		15988
HPV45	L1	319	10	VYSPSPSGSI		15989
HPV45	L1	477	9	WTVDLKEKF		15990
HPV45	L1	420	9	YIHSMNSSI		15991
HPV45	L1	420	10	YIHSMNSSIL		15992
HPV45	L1	303	9	YIKGTSANM		15993
HPV45	L1	261	9	YIQMSADPY		15994
HPV45	L1	53	8	YVSRTSIF		15995
HPV45	L1	53	9	YVSRTSIFY		15996
HPV45	L1	161	8	AFSDPSII		15997
HPV45	L2	286	11	ALSSRRGTVRF		15998
HPV45	L2	328	10	ATEEIELQPL		15999
HPV45	L2	328	11	ATEEIELQPLI		16000
HPV45	L2	303	11	ATMFTRSGKQI		16001
HPV45	L2	340	8	ATNDSDLF		16002
HPV45	L2	340	11	ATNDSDLFDVY		16003
HPV45	L2	255	9	AYEPLDTTL		16004
HPV45	L2	255	11	AYEPLDTLSF		16005
HPV45	L2	275	8	DFMDIIRL		16006
HPV45	L2	405	10	DIILPSHTPM		16007
HPV45	L2	405	11	DIILPSHTPMW		16008
HPV45	L2	278	10	DIIRLHRPAL		16009
HPV45	L2	322	11	DISPIAATEEI		16010
HPV45	L2	142	11	DITPTVDSVSI		16011
HPV45	L2	345	9	DLFDVYADF		16012
HPV45	L2	83	11	DVGTPRPVVI		16013
HPV45	L2	30	11	DVINKVEGTTL		16014
HPV45	L2	397	10	DVPIYTGPD I		16015
HPV45	L2	397	11	DVPIYTGPDII		16016
HPV45	L2	331	8	EIELQPLI		16017
HPV45	L2	241	8	FLTHPSSL		16018
HPV45	L2	241	11	FLTHPSSLVTF		16019
HPV45	L2	122	9	FTGTSGFEI		16020
HPV45	L2	157	11	FTNPAFSDPSI		16021
HPV45	L2	306	8	FTRSGKQI		16022
HPV45	L2	368	8	FTYPKYSI		16023
HPV45	L2	368	10	FTYPKYSLTM		16024
HPV45	L2	319	8	FYHDSPI		16025
HPV45	L2	51	9	GIFLGGGLI		16026
HPV45	L2	430	8	GIHGTQYY		16027
HPV45	L2	430	9	GIHGTQYYL		16028
HPV45	L2	430	10	GIHGTQYYLW		16029
HPV45	L2	25	8	GTCPPDVI		16030
HPV45	L2	206	10	GTEPISSTPL		16031
HPV45	L2	183	10	GTPTSGSHGY		16032
HPV45	L2	433	9	GTQYYLWPW		16033

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L2	433	10	GTQYLLWPWY		16034
HPV45	L2	433	11	GTQYLLWPWYY		16035
HPV45	L2	37	8	GTLADKI		16036
HPV45	L2	37	9	GTLADKIL		16037
HPV45	L2	37	11	GTLADKILQW		16038
HPV45	L2	134	8	GTTTPAVL		16039
HPV45	L2	134	10	GTTTPAVLDI		16040
HPV45	L2	292	8	GTVRFSL		16041
HPV45	L2	191	10	GYEIPLOTF		16042
HPV45	L2	318	9	HFYHDISPI		16043
HPV45	L2	52	8	IFLGGLGI		16044
HPV45	L2	406	9	IILPSHTPM		16045
HPV45	L2	406	10	IILPSHTPMW		16046
HPV45	L2	279	9	IIRLHRPAL		16047
HPV45	L2	407	8	IILPSHTPM		16048
HPV45	L2	407	9	IILPSHTPMW		16049
HPV45	L2	44	9	ILQWSSLGI		16050
HPV45	L2	44	10	ILQWSSLGIF		16051
HPV45	L2	44	11	ILQWSSLGIFL		16052
HPV45	L2	143	10	ITPTVDSVSI		16053
HPV45	L2	400	8	IYTGPDII		16054
HPV45	L2	400	9	IYTGPDII		16055
HPV45	L2	43	8	KILQWSSL		16056
HPV45	L2	43	10	KILQWSSLGI		16057
HPV45	L2	43	11	KILQWSSLGIF		16058
HPV45	L2	34	11	KVEGTTIADKI		16059
HPV45	L2	346	8	LFDVYADF		16060
HPV45	L2	337	10	LISATNDSDL		16061
HPV45	L2	337	11	LISATNDSDLF		16062
HPV45	L2	242	10	LTHPSSLVTF		16063
HPV45	L2	375	11	LTMPSTAASSY		16064
HPV45	L2	392	9	LTSAWDVPI		16065
HPV45	L2	392	10	LTSAWDVPIY		16066
HPV45	L2	248	9	LVTFDNPAY		16067
HPV45	L2	438	8	LWPWYVYF		16068
HPV45	L2	305	9	MFTRSKGKI		16069
HPV45	L2	270	8	NVPDSDFM		16070
HPV45	L2	270	10	NVPDSDFMDI		16071
HPV45	L2	270	11	NVPDSDFMDII		16072
HPV45	L2	387	10	NVTPLTSAW		16073
HPV45	L2	325	8	PIAATEEI		16074
HPV45	L2	325	10	PIAATEEIEL		16075
HPV45	L2	399	8	PIYTGPI		16076
HPV45	L2	399	9	PIYTGPII		16077
HPV45	L2	399	10	PIYTGPIIL		16078
HPV45	L2	258	8	PLDTTILSF		16079

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L2	336	11	PLISATNDSDL		16080
HPV45	L2	391	10	PLTSAWDVPI		16081
HPV45	L2	391	11	PLTSAWDVPIY		16082
HPV45	L2	98	9	PTDPSIVTL		16083
HPV45	L2	120	9	PTFTGTSGF		16084
HPV45	L2	120	11	PTFTGTSGFEI		16085
HPV45	L2	420	9	PTNASTTTY		16086
HPV45	L2	420	10	PTNASTTTYI		16087
HPV45	L2	86	8	PTRPPVVI		16088
HPV45	L2	185	8	PTSGSHGY		16089
HPV45	L2	185	11	PTSGSHGYEEI		16090
HPV45	L2	267	10	PTSNVPDSDF		16091
HPV45	L2	267	11	PTSNVPDSDFM		16092
HPV45	L2	145	8	PTVDSVSI		16093
HPV45	L2	216	11	PTVRRVRGPRL		16094
HPV45	L2	95	9	PVGPTDPSI		16095
HPV45	L2	118	11	PVPTFTGTSGF		16096
HPV45	L2	453	8	PYFFADGF		16097
HPV45	L2	240	9	QFLTHPSSL		16098
HPV45	L2	312	8	QIGGRVHF		16099
HPV45	L2	172	9	QIGGRVHFY		16100
HPV45	L2	172	9	QTGEVSGNI		16101
HPV45	L2	233	10	QTGEVSGNIF		16102
HPV45	L2	233	9	QVRVSTSQF		16103
HPV45	L2	233	10	QVRVSTSQFL		16104
HPV45	L2	46	8	QWSSLGIF		16105
HPV45	L2	46	9	QWSSLGIFL		16106
HPV45	L2	435	8	QYYLWPWY		16107
HPV45	L2	435	9	QYYLWPWYY		16108
HPV45	L2	435	10	QYYLWPWYYY		16109
HPV45	L2	435	11	QYYLWPWYYYYF		16110
HPV45	L2	295	11	REFRLGQRATM		16111
HPV45	L2	451	10	RIPYFFADGF		16112
HPV45	L2	298	8	RLGQRATM		16113
HPV45	L2	298	9	RLGQRATMF		16114
HPV45	L2	316	8	RVHFFYHDI		16115
HPV45	L2	316	11	RVHFFYHDISPI		16116
HPV45	L2	220	8	RVRGPRLY		16117
HPV45	L2	235	8	RVSTSQFL		16118
HPV45	L2	367	9	SFTYPKYSL		16119
HPV45	L2	367	11	SFTYPKYSLTM		16120
HPV45	L2	49	9	SLGIFLGL		16121
HPV45	L2	49	11	SLGIFLGLGI		16122
HPV45	L2	247	10	SLVTFDNPAY		16123
HPV45	L2	362	9	STHIKSFTY		16124
HPV45	L2	154	9	STSFTNPAF		16125

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L2	358	11	STTPSTIHKSF		16126
HPV45	L2	424	8	STTYIGI		16127
HPV45	L2	149	9	SVSISSTSF		16128
HPV45	L2	384	9	SYSNVTIVPL		16129
HPV45	L2	250	10	TFDNPAYEPL		16130
HPV45	L2	121	8	TFTGTSGF		16131
HPV45	L2	121	10	TFTGTSGFEI		16132
HPV45	L2	363	8	THKSFTY		16133
HPV45	L2	363	11	THKSFTYPKY		16134
HPV45	L2	39	9	TLADKILQW		16135
HPV45	L2	304	10	TMFTRSGKQI		16136
HPV45	L2	376	10	TMPSTAASSY		16137
HPV45	L2	38	8	TTLADKIL		16138
HPV45	L2	38	10	TTLADKILQW		16139
HPV45	L2	136	8	TPPAVLDI		16140
HPV45	L2	359	10	TPPSTHKSF		16141
HPV45	L2	135	9	TPPAVLDI		16142
HPV45	L2	426	11	TTYIGIHGTQY		16143
HPV45	L2	389	8	TVPLTSAW		16144
HPV45	L2	217	10	TVRRVRGPRL		16145
HPV45	L2	217	11	TVRRVRGPRLY		16146
HPV45	L2	427	10	TYIGIHGTQY		16147
HPV45	L2	427	11	TYIGIHGTQYY		16148
HPV45	L2	369	9	TPKYSLTM		16149
HPV45	L2	31	10	VINKVEGTTL		16150
HPV45	L2	249	8	VTFDNPAY		16151
HPV45	L2	249	11	VTFDNPAYEPL		16152
HPV45	L2	388	9	VTVPLTSAW		16153
HPV45	L2	112	11	VVASGAPVPTF		16154
HPV45	L2	444	9	YFPKKRKRI		16155
HPV45	L2	444	11	YFPKKRKRIPIY		16156
HPV45	L2	428	9	YIGIHGTQY		16157
HPV45	L2	428	10	YIGIHGTQYY		16158
HPV45	L2	428	11	YIGIHGTQYYL		16159
HPV45	L2	437	8	YLWPWYYY		16160
HPV45	L2	437	9	YLWPWYYYF		16161
HPV45	L2	401	8	YTGPDIL		16162
HPV45	L2	443	10	YFPKKRKRI		16163
HPV45	L2	436	8	YLWPWYYY		16164
HPV45	L2	436	9	YLWPWYYYF		16165
HPV45	L2	436	10	YLWPWYYYF		16166
HPV45	L2	442	11	YYYFPKKRKRI		16167
HPV56	E2	15	8	AEVQIAL		16168
HPV56	E2	15	11	AEVQIALES		16169
HPV56	E2	21	9	ALESSTTI		16170
HPV56	E2	21	10	ALESSTTIY		16171

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	E2	52	9	CFKKEGQHI		16172
HPV56	E2	71	9	CMQYVAWKY		16173
HPV56	E2	71	10	CMQYVAWKYI		16174
HPV56	E2	71	11	CMQYVAWKYIY		16175
HPV56	E2	204	8	CVTHTHI		16176
HPV56	E2	113	9	DFEQAKKF		16177
HPV56	E2	39	8	DTCEELWL		16178
HPV56	E2	263	8	DVTSTYHW		16179
HPV56	E2	43	11	ELWLTEPKKCF		16180
HPV56	E2	288	8	ETQRNSFL		16181
HPV56	E2	128	9	EVHMENESI		16182
HPV56	E2	128	10	EVHMENESIY		16183
HPV56	E2	17	9	EVQIALES		16184
HPV56	E2	34	11	EWTLRDTCEEL		16185
HPV56	E2	294	11	FLSHVKIPVY		16186
HPV56	E2	261	8	FVDVTSTY		16187
HPV56	E2	261	10	FVDVTSTYHW		16188
HPV56	E2	94	8	GVDYRGYI		16189
HPV56	E2	94	9	GVDYRGYIY		16190
HPV56	E2	87	11	GWQKVCSGVDY		16191
HPV56	E2	239	9	HLKGEPNRL		16192
HPV56	E2	130	8	HMENESIY		16193
HPV56	E2	297	8	HVKIPVVY		16194
HPV56	E2	297	10	HVKIPVVYRL		16195
HPV56	E2	269	10	HWTSTDKNY		16196
HPV56	E2	126	11	IWEVHMENESI		16197
HPV56	E2	284	11	IYKDETQRNSF		16198
HPV56	E2	29	9	IYNNEEWT		16199
HPV56	E2	80	9	IYNGDCGW		16200
HPV56	E2	100	11	IYVVDGCHKTY		16201
HPV56	E2	120	8	KFGCKNIW		16202
HPV56	E2	299	8	KIPVVYRL		16203
HPV56	E2	299	10	KIPVVYRLVW		16204
HPV56	E2	258	11	KTLFVDVTSTY		16205
HPV56	E2	233	8	KTPVVHL		16206
HPV56	E2	90	8	KVCSGVDY		16207
HPV56	E2	90	11	KVCSGVDYRGI		16208
HPV56	E2	78	11	KYIYNGDCGW		16209
HPV56	E2	260	9	LFVDVTSTY		16210
HPV56	E2	260	11	LFVDVTSTYHW		16211
HPV56	E2	46	8	LTEPKKCF		16212
HPV56	E2	44	10	LWLTEPKKCF		16213
HPV56	E2	216	9	NTDSRSRSI		16214
HPV56	E2	149	11	NVSPVETVNEY		16215
HPV56	E2	277	8	NYSIITHI		16216
HPV56	E2	277	9	NYSIITHIY		16217

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV56	E2	152	8	PVETVNEY	16218
HPV56	E2	301	8	PVVYRLVW	16219
HPV56	E2	19	11	QIALESSTTI	16220
HPV56	E2	6	11	QVCKAKACSAI	16221
HPV56	E2	73	8	QYVAWKYI	16222
HPV56	E2	73	9	QYVAWKYIY	16223
HPV56	E2	73	10	QYVAWKYIYY	16224
HPV56	E2	253	8	RFQYKTL	16225
HPV56	E2	253	9	RFQYKTLF	16226
HPV56	E2	246	9	RLKCCRYRF	16227
HPV56	E2	251	10	RYRFQYKTL	16228
HPV56	E2	251	11	RYRFQYKTLF	16229
HPV56	E2	293	8	SFLSHVKI	16230
HPV56	E2	272	9	STDNKNYSI	16231
HPV56	E2	272	10	STDNKNYSII	16232
HPV56	E2	26	10	STIYNNEEW	16233
HPV56	E2	141	8	SVSSTCRY	16234
HPV56	E2	28	8	TIYNNEEW	16235
HPV56	E2	28	10	TIYNNEEWTL	16236
HPV56	E2	259	10	TLFVDVTSTY	16237
HPV56	E2	36	9	TLRDTCEEL	16238
HPV56	E2	36	10	TLRDTCEELW	16239
HPV56	E2	36	11	TLRDTCEELWL	16240
HPV56	E2	27	9	TTIYNNEEW	16241
HPV56	E2	27	11	TTIYNNEEWTL	16242
HPV56	E2	237	11	VVILKGEPNRL	16243
HPV56	E2	62	11	VWFDGSKNNCM	16244
HPV56	E2	63	10	WFDGSKNNCM	16245
HPV56	E2	45	9	WLTEPKKCF	16246
HPV56	E2	35	10	WTLRDTCEEL	16247
HPV56	E2	35	11	WTLRDTCEELW	16248
HPV56	E2	270	9	WTSTDNKNY	16249
HPV56	E2	270	11	WTSTDNKNYSI	16250
HPV56	E2	79	10	YIYNGDCGW	16251
HPV56	E2	111	11	YTDFEQEAQKF	16252
HPV56	E2	74	8	YVAWKYIY	16253
HPV56	E2	74	9	YVAWKYIYY	16254
HPV56	E2	102	9	YVIDGHKTY	16255
HPV56	E2	102	10	YVIDGHKTYIY	16256
HPV56	E2	81	8	YNGDCGW	16257
HPV56	E2	101	10	YYVHDGIKTY	16258
HPV56	E2	101	11	YYVHDGHKTYIY	16259
HPV56	E6	89	11	ATLESITKKQL	16260
HPV56	E6	64	8	AVCRVCLL	16261
HPV56	E6	64	9	AVCRVCLLF	16262
HPV56	E6	64	10	AVCRVCLLFY	16263

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A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	E6	69	11	CLLFYSKVRKY		16264
HPV56	E6	50	8	CTELKLVY		16265
HPV56	E6	33	8	CVYCKKEL		16266
HPV56	E6	106	8	CYRCQSPL		16267
HPV56	E6	60	11	DFPYAVCRVCL		16268
HPV56	E6	28	8	DRLSCVY		16269
HPV56	E6	83	9	DYSVYGATL		16270
HPV56	E6	23	9	EPLDLRL		16271
HPV56	E6	52	10	ELKLVYRDDF		16272
HPV56	E6	39	8	ELTRAEVY		16273
HPV56	E6	39	10	ELTRAEVYNF		16274
HPV56	E6	20	8	EVLEIPLI		16275
HPV56	E6	20	10	EVLEIPLIDL		16276
HPV56	E6	44	10	EVYNFACTEL		16277
HPV56	E6	72	8	FYSKVRKY		16278
HPV56	E6	72	10	FYSKVRKYRY		16279
HPV56	E6	72	11	FYSKVRKYRY		16280
HPV56	E6	134	10	GWTSCLGCW		16281
HPV56	E6	17	8	HLSEVLEI		16282
HPV56	E6	17	10	HLSEVLEIPL		16283
HPV56	E6	17	11	HLSEVLEIPLI		16284
HPV56	E6	94	9	ITKKQLCDL		16285
HPV56	E6	94	10	ITKKQLCDLL		16286
HPV56	E6	94	11	ITKKQLCDLLI		16287
HPV56	E6	54	8	KLVRDDF		16288
HPV56	E6	54	10	KLVRDDFPY		16289
HPV56	E6	75	8	KVRKYRY		16290
HPV56	E6	75	10	KVRKYRYDY		16291
HPV56	E6	78	10	KYRYDYSVY		16292
HPV56	E6	71	9	LFYSKVRKY		16293
HPV56	E6	71	11	LFYSKVRKYRY		16294
HPV56	E6	130	11	LIAHGWTSCL		16295
HPV56	E6	26	10	LIDLRLSCVY		16296
HPV56	E6	103	11	LIRCYRCQSPL		16297
HPV56	E6	70	10	LLFYSKVRKY		16298
HPV56	E6	113	8	LTPEKQL		16299
HPV56	E6	40	9	LTRAEVYNF		16300
HPV56	E6	55	9	LVYRDDFPY		16301
HPV56	E6	47	9	NFACTELKI		16302
HPV56	E6	47	11	NFACTELKLVY		16303
HPV56	E6	25	11	PLIDLRLSCVY		16304
HPV56	E6	112	9	PLTPEKQL		16305
HPV56	E6	62	9	PYAVCRVCL		16306
HPV56	E6	62	10	PYAVCRVCLL		16307
HPV56	E6	62	11	PYAVCRVCLLF		16308
HPV56	E6	98	10	QLCDLLIRCY		16309

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	E6	119	10	QLHCDRKRFF		16310
HPV56	E6	127	9	RFILIAHGW		16311
HPV56	E6	30	11	RLSCVYCKKEL		16312
HPV56	E6	80	8	RYDYSVY		16313
HPV56	E6	93	10	SITKKQLCDL		16314
HPV56	E6	93	11	SITKKQLCDLL		16315
HPV56	E6	14	9	SLHHLSEVL		16316
HPV56	E6	14	11	SLHHLSEVLEI		16317
HPV56	E6	85	10	SVYGATLESI		16318
HPV56	E6	90	10	TLESITKKQL		16319
HPV56	E6	21	9	VLEIPLIDL		16320
HPV56	E6	21	11	VLEIPLIDLRL		16321
HPV56	E6	86	9	VYGATLESI		16322
HPV56	E6	45	9	VYNEFACTEL		16323
HPV56	E6	45	11	VYNEFACTELKL		16324
HPV56	E6	56	8	VYRDDFPY		16325
HPV56	E6	135	9	WTGSLGCW		16326
HPV56	E6	81	11	YYDYSVYGATL		16327
HPV56	E7	93	8	ALTVTCPL		16328
HPV56	E7	75	9	DIQSTKEDL		16329
HPV56	E7	22	8	DLQCNEQL		16330
HPV56	E7	82	8	DLRVVQQL		16331
HPV56	E7	82	9	DLRVVQQLL		16332
HPV56	E7	82	10	DLRVVQQLLM		16333
HPV56	E7	20	10	EIDLQCNEQL		16334
HPV56	E7	14	8	ELTPQTEI		16335
HPV56	E7	14	10	ELTPQTEIDL		16336
HPV56	E7	62	9	HVPCCECKF		16337
HPV56	E7	69	8	KFVVQLDI		16338
HPV56	E7	4	10	KVPTLQDQVVL		16339
HPV56	E7	60	11	LIHVPCCECKF		16340
HPV56	E7	90	11	LMGALTIVTCPL		16341
HPV56	E7	15	9	LTPQTEIDL		16342
HPV56	E7	6	8	PTLQDQVVL		16343
HPV56	E7	6	10	PTLQDQVVLEL		16344
HPV56	E7	73	11	QLDIQSTKEDL		16345
HPV56	E7	84	8	RVVQQLLM		16346
HPV56	E7	84	11	RVVQQLLMGAL		16347
HPV56	E7	7	9	TLQDQVVLEL		16348
HPV56	E7	12	10	VLELTPQTEI		16349
HPV56	E7	11	11	VVLELTPQTEI		16350
HPV56	E7	85	10	VVQQLMGAL		16351
HPV56	L1	58	11	ATDSYVKRTSI		16352
HPV56	L1	381	8	ATEQLSKY		16353
HPV56	L1	327	8	ATPSGSMI		16354
HPV56	L1	444	8	ATSLEDKY		16355

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L1	444	10	ATSLDKYRY		16356
HPV56	L1	37	11	ATWRPSENKVV		16357
HPV56	L1	26	8	AVNVFPIF		16358
HPV56	L1	26	9	AVNVFPIFL		16359
HPV56	L1	26	11	AVNVFPIFLQM		16360
HPV56	L1	275	8	AYGDSMWF		16361
HPV56	L1	275	9	AYGDSMWFY		16362
HPV56	L1	275	10	AYGDSMWFYFL		16363
HPV56	L1	422	10	AYLHNMNANL		16364
HPV56	L1	422	11	AYLHNMNANLL		16365
HPV56	L1	101	11	AYQYRVFRVRL		16366
HPV56	L1	191	9	CIVGCTPAM		16367
HPV56	L1	195	9	CTPAMGEHW		16368
HPV56	L1	257	9	DIVQSTCKY		16369
HPV56	L1	491	11	DLDQFPLGRKF		16370
HPV56	L1	233	10	DMIDTGFAGM		16371
HPV56	L1	236	9	DTGFGAMDF		16372
HPV56	L1	369	8	DTTRSTNM		16373
HPV56	L1	369	10	DTTRSTNMTI		16374
HPV56	L1	23	8	DVGAVNVF		16375
HPV56	L1	23	10	DVGAVNVFPI		16376
HPV56	L1	23	11	DVGAVNVFPIF		16377
HPV56	L1	481	8	DVNLQDSF		16378
HPV56	L1	267	10	DYLMKSADAY		16379
HPV56	L1	404	8	ELQFVFQL		16380
HPV56	L1	404	11	ELQFVFQLCKI		16381
HPV56	L1	303	8	ETIPAELY		16382
HPV56	L1	303	9	ETIPAELYL		16383
HPV56	L1	140	8	EVGRGQPL		16384
HPV56	L1	419	9	EVMAYLHNM		16385
HPV56	L1	402	8	EYELQFVF		16386
HPV56	L1	402	10	EYELQFVFQL		16387
HPV56	L1	21	10	FLDVGAENVF		16388
HPV56	L1	407	8	FVFQLCKI		16389
HPV56	L1	407	10	FVFQLCKITL		16390
HPV56	L1	479	10	FWDVNLQDSF		16391
HPV56	L1	69	9	FYHAGSSRL		16392
HPV56	L1	69	10	FYHAGSSRL		16393
HPV56	L1	282	8	FYLRREQL		16394
HPV56	L1	282	9	FYLRREQLF		16395
HPV56	L1	238	10	GFGAMDFKVL		16396
HPV56	L1	356	8	GICWGNQL		16397
HPV56	L1	356	9	GICWGNQLF		16398
HPV56	L1	138	10	GLEVGRGQPL		16399
HPV56	L1	118	8	GLPDTNIY		16400
HPV56	L1	150	8	GLSGHPLF		16401

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L1	150	11	GLSGHPLFNRL		16402
HPV56	L1	438	10	GLSPPVATSL		16403
HPV56	L1	399	9	HVEEYELQF		16404
HPV56	L1	399	11	HVEEYELQFVF		16405
HPV56	L1	15	8	HYGLCIFL		16406
HPV56	L1	20	11	IFLDVGAVNVF		16407
HPV56	L1	32	8	IFLQMATW		16408
HPV56	L1	68	10	IFYHAGSSRL		16409
HPV56	L1	68	11	IFYHAGSSRL		16410
HPV56	L1	414	8	ITLSAEVM		16411
HPV56	L1	414	10	ITLSAEVMAY		16412
HPV56	L1	414	11	ITLSAEVMAYL		16413
HPV56	L1	334	8	ITSEAQLF		16414
HPV56	L1	192	8	IVGCTPAM		16415
HPV56	L1	258	8	IVQSTCKY		16416
HPV56	L1	258	11	IVQSTCKYPDY		16417
HPV56	L1	124	9	INPDQERL		16418
HPV56	L1	124	11	INPDQERLVW		16419
HPV56	L1	8	9	IYRDPLHY		16420
HPV56	L1	8	11	IYRDPLHYGL		16421
HPV56	L1	116	9	KFGLPDTNI		16422
HPV56	L1	116	10	KFGLPDTNIY		16423
HPV56	L1	478	11	KFWDVNLQDSF		16424
HPV56	L1	413	9	KITLSAEVM		16425
HPV56	L1	413	11	KITLSAEVMAY		16426
HPV56	L1	270	11	KMSADAYGDSM		16427
HPV56	L1	93	10	KTNIPKVSAY		16428
HPV56	L1	300	10	KVGETIPAEEL		16429
HPV56	L1	300	11	KVGETIPAEELY		16430
HPV56	L1	98	10	KVSAYQYRVF		16431
HPV56	L1	55	8	KVVATDSY		16432
HPV56	L1	387	10	KYDARKINQY		16433
HPV56	L1	387	11	KYDARKINQYL		16434
HPV56	L1	476	9	KYKFWDVNL		16435
HPV56	L1	264	8	KYPDYLKM		16436
HPV56	L1	450	10	KYRYVRSTAI		16437
HPV56	L1	340	8	LFNKPYWL		16438
HPV56	L1	224	11	LINTPIEDGDM		16439
HPV56	L1	77	8	LLAVGHPY		16440
HPV56	L1	77	9	LLAVGHPYY		16441
HPV56	L1	431	9	LLEDWNIGL		16442
HPV56	L1	132	8	LVWACVGL		16443
HPV56	L1	234	9	MIDTGFAM		16444
HPV56	L1	234	11	MIDTGFAMDF		16445
HPV56	L1	333	8	MITSEAQL		16446
HPV56	L1	333	9	MITSEAQLF		16447

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV56	L1	2	8	MLPMMYIY	16448
HPV56	L1	1	8	MMLPMMYI	16449
HPV56	L1	1	9	MMLPMMYIY	16450
HPV56	L1	5	10	MMYIYRDPPL	16451
HPV56	L1	376	10	MTISTATEQL	16452
HPV56	L1	280	10	MWFYLRREQL	16453
HPV56	L1	280	11	MWFYLRREQLF	16454
HPV56	L1	6	9	MYIYRDPPL	16455
HPV56	L1	6	11	MYIYRDPPLHY	16456
HPV56	L1	95	8	NIPKVSAY	16457
HPV56	L1	95	10	NIPKVSAYQY	16458
HPV56	L1	180	11	NISVDGKQTQL	16459
HPV56	L1	123	10	NIYNPDQERL	16460
HPV56	L1	167	8	NLANNVI	16461
HPV56	L1	430	8	NLLEDWNI	16462
HPV56	L1	430	10	NLLEDWNIGL	16463
HPV56	L1	483	10	NLQDSFSTDL	16464
HPV56	L1	426	10	NMNANLLEDW	16465
HPV56	L1	375	11	NMTISTATEQL	16466
HPV56	L1	226	9	NTPIEDGDM	16467
HPV56	L1	226	10	NTPIEDGDMI	16468
HPV56	L1	28	9	NVPPIFLOM	16469
HPV56	L1	172	10	NVIEDSRDNI	16470
HPV56	L1	228	8	PIEDGDMI	16472
HPV56	L1	31	9	PIFLOMATW	16473
HPV56	L1	473	8	PLAKYKFW	16474
HPV56	L1	221	9	PLALINTPI	16475
HPV56	L1	255	11	PLDIVQSTCKY	16476
HPV56	L1	146	11	PLGAGLSGIPL	16477
HPV56	L1	496	8	PLGRKFLM	16478
HPV56	L1	496	10	PLGRKFLMQL	16479
HPV56	L1	13	8	PLHYGLCI	16480
HPV56	L1	13	9	PLHYGLCIF	16481
HPV56	L1	13	10	PLHYGLCIFL	16482
HPV56	L1	4	11	PMYIYRDPPL	16483
HPV56	L1	467	8	PTEKQDPL	16484
HPV56	L1	467	11	PTEKQDPLAKY	16485
HPV56	L1	442	10	PVATSLSDKY	16486
HPV56	L1	52	11	PVSKVVAIDSY	16487
HPV56	L1	494	8	QFPLGRKF	16488
HPV56	L1	494	9	QFPLGRKFL	16489
HPV56	L1	494	10	QFPLGRKFLM	16490
HPV56	L1	406	9	QVFEQLCKI	16491
HPV56	L1	406	11	QVFEQLCKITL	16492
HPV56	L1	189	11	QLCIVGCTPAM	16493
HPV56	L1	288	8	QLFARHYF	16493

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L1	339	8	QLFNKPYW		16494
HPV56	L1	339	9	QLFNKPYWL		16495
HPV56	L1	384	10	QLSKYDARKI		16496
HPV56	L1	213	10	QVTTGDCPPL		16497
HPV56	L1	395	9	QYLRHVEEY		16498
HPV56	L1	395	11	QYLRHVEEYEL		16499
HPV56	L1	103	9	QYRVFRVRL		16500
HPV56	L1	159	10	RLDDTESNL		16501
HPV56	L1	76	9	RLAVGHPY		16502
HPV56	L1	76	10	RLAVGHPYY		16503
HPV56	L1	110	8	RLDPNKF		16504
HPV56	L1	110	10	RLDPNKFGL		16505
HPV56	L1	131	9	RLVWACVGL		16506
HPV56	L1	108	10	RVRLDPNKF		16507
HPV56	L1	452	8	RYVRSTAI		16508
HPV56	L1	487	9	SFSTDLDQF		16509
HPV56	L1	487	11	SFSTDLDQFPL		16510
HPV56	L1	67	11	SIFYHAGSSRL		16511
HPV56	L1	446	8	SLEDKYRY		16512
HPV56	L1	332	9	SMITSEAOQL		16513
HPV56	L1	332	10	SMITSEAOQLF		16514
HPV56	L1	279	11	SMWFYLRREQ		16515
HPV56	L1	379	10	STATEQLSKY		16516
HPV56	L1	261	8	STCKYPDY		16517
HPV56	L1	261	9	STCKYPDYL		16518
HPV56	L1	261	11	STCKYPDYLKM		16519
HPV56	L1	489	9	STDLDQFPL		16520
HPV56	L1	182	9	SVDGKQTQL		16521
HPV56	L1	182	11	SVDGKQTQLCI		16522
HPV56	L1	86	11	SVTKDNTKINI		16523
HPV56	L1	323	11	SVVATPSGSM		16524
HPV56	L1	61	8	SYVKRTSI		16525
HPV56	L1	61	9	SYVKRTSIF		16526
HPV56	L1	61	10	SYVKRTSIFY		16527
HPV56	L1	304	8	TIPAELEYL		16528
HPV56	L1	377	9	TISTATEQL		16529
HPV56	L1	415	9	TLSAEVMAY		16530
HPV56	L1	415	10	TLSAEVMAYL		16531
HPV56	L1	215	8	TTGDCPPL		16532
HPV56	L1	215	10	TTGDCPPLAL		16533
HPV56	L1	215	11	TTGDCPPLALI		16534
HPV56	L1	370	9	TTRSTNMTI		16535
HPV56	L1	366	11	TVVDTRSTNM		16536
HPV56	L1	38	10	TWRPSENKVV		16537
HPV56	L1	38	11	TWRPSENKVYL		16538
HPV56	L1	29	8	VFPIFLQM		16539

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L1	29	11	VFPIFLQMATW		16540
HPV56	L1	408	9	VFQLCKITL		16541
HPV56	L1	173	9	VIEDSRDNI		16542
HPV56	L1	246	11	VLQESKAEVPL		16543
HPV56	L1	420	8	VMAYLHNM		16544
HPV56	L1	87	10	VTKDNTKTN		16545
HPV56	L1	214	9	VTGDCPPL		16546
HPV56	L1	214	11	VTGDCPPLAL		16547
HPV56	L1	367	10	VVDTRSTNM		16548
HPV56	L1	324	10	VYVATPSGSM		16549
HPV56	L1	324	11	VYVATPSGSMI		16550
HPV56	L1	281	9	WFYLRREQL		16551
HPV56	L1	281	10	WFYLRREQLF		16552
HPV56	L1	7	8	YIYRDPPL		16553
HPV56	L1	7	10	YIYRDPPLHY		16554
HPV56	L1	423	9	YLHNMNANL		16555
HPV56	L1	423	10	YLHNMNANLL		16556
HPV56	L1	268	9	YLKMSADAY		16557
HPV56	L1	396	8	YLRHVEEY		16558
HPV56	L1	396	10	YLRHVEEYEL		16559
HPV56	L1	283	8	YLRREQLF		16560
HPV56	L1	325	9	YVATPSGSM		16561
HPV56	L1	325	10	YVATPSGSMI		16562
HPV56	L1	62	8	YVKRTSIF		16563
HPV56	L1	62	9	YVKRTSIFY		16564
HPV56	L2	240	9	AFLDRPATL		16565
HPV56	L2	286	11	AFTTRGGVRF		16566
HPV56	L2	438	8	ALWPVYFF		16567
HPV56	L2	303	11	ATIQTRRGTOI		16568
HPV56	L2	246	10	ATLVSADNPL		16569
HPV56	L2	246	11	ATLVSADNPLF		16570
HPV56	L2	367	9	ATPSAHLPI		16571
HPV56	L2	14	10	ATQLYKTCKL		16572
HPV56	L2	201	10	AVHGSGETPI		16573
HPV56	L2	275	8	DFMNIVAL		16574
HPV56	L2	322	11	DISPIAQAEFI		16575
HPV56	L2	406	11	DIVLPTGPSTW		16576
HPV56	L2	425	8	DVTHDVYI		16577
HPV56	L2	83	9	DVTPARPII		16578
HPV56	L2	30	11	DVVKIEQKTW		16579
HPV56	L2	429	9	DVYIQGSF		16580
HPV56	L2	429	11	DVYIQGSFAL		16581
HPV56	L2	331	8	EIEMQPLL		16582
HPV56	L2	398	10	ETPFYSGPDI		16583
HPV56	L2	175	8	EVSGNILL		16584
HPV56	L2	444	10	FFRRRRKRRI		16585

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L2	241	8	FLDRPATL		16586
HPV56	L2	122	9	FTGSGGFEI		16587
HPV56	L2	287	10	FTTRRGVRF		16588
HPV56	L2	51	9	FTYFGGLGI		16589
HPV56	L2	401	9	FYSGPDIVL		16590
HPV56	L2	217	10	GFRRIAAPRL		16591
HPV56	L2	217	11	GFRRIAAPRLY		16592
HPV56	L2	188	8	GIHSYEEI		16593
HPV56	L2	188	10	GIHSYEEIPM		16594
HPV56	L2	118	11	GIPIFTGSGGF		16595
HPV56	L2	346	9	GLYDIYANI		16596
HPV56	L2	25	11	GTCPEDVVNKI		16597
HPV56	L2	258	8	GTDTSLAF		16598
HPV56	L2	206	10	GTEPISSTPI		16599
HPV56	L2	62	10	GTGSGGRAGY		16600
HPV56	L2	310	10	GTQIGARVHY		16601
HPV56	L2	310	11	GTQIGARVHY		16602
HPV56	L2	269	8	GVAPDPDF		16603
HPV56	L2	269	9	GVAPDPDFM		16604
HPV56	L2	269	11	GVAPDPDFMNI		16605
HPV56	L2	156	8	HITNPLFI		16606
HPV56	L2	372	9	HLPIKPSTL		16607
HPV56	L2	372	11	HLPIKPSTLSF		16608
HPV56	L2	151	11	HVSSTHITNPL		16609
HPV56	L2	318	9	HYYYDISPI		16610
HPV56	L2	180	10	ILISTPTSGI		16611
HPV56	L2	44	8	ILQWGSLSF		16612
HPV56	L2	44	10	ILQWGSLSFTY		16613
HPV56	L2	44	11	ILQWGSLSFTYF		16614
HPV56	L2	279	9	IVALHRPAF		16615
HPV56	L2	81	11	IVDVTPARPP		16616
HPV56	L2	407	10	IVLPTGPSTW		16617
HPV56	L2	103	11	IVTLVESSVI		16618
HPV56	L2	34	11	KIEQKTWADKI		16619
HPV56	L2	43	8	KILQWGSLS		16620
HPV56	L2	43	9	KILQWGSLSF		16621
HPV56	L2	43	11	KILQWGSLSFTY		16622
HPV56	L2	38	8	KTWADKIL		16623
HPV56	L2	38	10	KTWADKILQW		16624
HPV56	L2	235	8	KVTDPAFL		16625
HPV56	L2	255	9	LFEGTDTSL		16626
HPV56	L2	255	11	LFEGTDTSLAF		16627
HPV56	L2	161	8	LFIDPPVI		16628
HPV56	L2	50	8	LFTYFGGL		16629
HPV56	L2	50	10	LFTYFGGLGI		16630
HPV56	L2	181	9	LISTPTSGI		16631

Table X

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No
HPV56	L2	337	8	LLSANNNSF	16632
HPV56	L2	337	11	LLSANNNSFDGL	16633
HPV56	L2	106	8	LVESSVI	16634
HPV56	L2	248	8	LVSADNPL	16635
HPV56	L2	248	9	LVSADNPLF	16636
HPV56	L2	347	8	LYDIYANI	16637
HPV56	L2	121	8	NFTSGGGF	16638
HPV56	L2	121	10	NFTSGGGFEI	16639
HPV56	L2	353	9	NIDDEAPGL	16640
HPV56	L2	179	11	NILISTPTSGI	16641
HPV56	L2	278	10	NIVALHRPAF	16642
HPV56	L2	385	9	NTTNVTAPL	16643
HPV56	L2	388	10	NVTAPLGNVW	16644
HPV56	L2	395	8	NVWETPFY	16645
HPV56	L2	417	8	PFVPQSPY	16646
HPV56	L2	400	8	PFYSGPDI	16647
HPV56	L2	400	10	PFYSGPDIVL	16648
HPV56	L2	325	8	PIAQAEI	16649
HPV56	L2	374	9	PIKPSTLSF	16650
HPV56	L2	214	8	PIPGFRRI	16651
HPV56	L2	209	10	PISSTPIPGF	16652
HPV56	L2	254	10	PLFEGTDTSL	16653
HPV56	L2	160	9	PLFIDPPVI	16654
HPV56	L2	392	10	PLGNVWETPF	16655
HPV56	L2	392	11	PLGNVWETPFY	16656
HPV56	L2	73	9	PLGSRPSTI	16657
HPV56	L2	336	9	PLLSANNNSF	16658
HPV56	L2	98	9	PTDPSIVTL	16659
HPV56	L2	410	9	PTGPSTWPF	16660
HPV56	L2	185	8	PTSGIHSY	16661
HPV56	L2	423	11	PTSGIHSYEEI	16662
HPV56	L2	423	9	PYDVTHDVY	16663
HPV56	L2	423	10	PYDVTHDVYI	16664
HPV56	L2	312	8	QIGARVHIY	16665
HPV56	L2	312	9	QIGARVHIYY	16666
HPV56	L2	312	10	QIGARVHIYYY	16667
HPV56	L2	16	8	QLYKTCKL	16668
HPV56	L2	172	9	QTGEVSGNI	16669
HPV56	L2	172	10	QTGEVSGNIL	16670
HPV56	L2	172	11	QTGEVSGNILI	16671
HPV56	L2	306	8	QTRRGTOI	16672
HPV56	L2	233	9	QVKVTDPAF	16673
HPV56	L2	233	10	QVKVTDPAFL	16674
HPV56	L2	46	8	QWGSIFTY	16675
HPV56	L2	46	9	QWGSIFTYF	16676
HPV56	L2	46	9	QWGSIFTYF	16677

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L2	295	11	RFSRLGRKATI		16678
HPV56	L2	220	8	RIAAPRLY		16679
HPV56	L2	298	8	RLGRKATI		16680
HPV56	L2	316	8	RVHYYYDI		16681
HPV56	L2	316	11	RVHYYYDISPI		16682
HPV56	L2	436	8	SFALWPVY		16683
HPV56	L2	436	9	SFALWPVYF		16684
HPV56	L2	436	10	SFALWPVYFF		16685
HPV56	L2	436	8	SFDGLYDI		16686
HPV56	L2	343	9	SFDGLYDIY		16687
HPV56	L2	343	9	SLFTYFGGL		16688
HPV56	L2	49	11	SLFTYFGGLGI		16689
HPV56	L2	49	8	STHINPL		16690
HPV56	L2	154	8	STHINPLF		16691
HPV56	L2	154	9	STHINPLF		16692
HPV56	L2	154	10	STHINPLFI		16693
HPV56	L2	212	10	STPIGFRRI		16694
HPV56	L2	183	10	STPTSQIHSY		16695
HPV56	L2	134	8	STTTPAVL		16696
HPV56	L2	134	10	STTTPAVLDI		16697
HPV56	L2	148	10	STVHVSSTHI		16698
HPV56	L2	414	11	STWPFVPQSPY		16699
HPV56	L2	365	9	SVATPSAHL		16700
HPV56	L2	365	11	SVATPSAHLPI		16701
HPV56	L2	95	9	SVGPTDPSI		16702
HPV56	L2	111	9	SVIESGAGI		16703
HPV56	L2	191	10	SYEEIPMQTF		16704
HPV56	L2	304	10	TIQTRGTQI		16705
HPV56	L2	105	9	TLVEESSVI		16706
HPV56	L2	247	9	TLVSADNPL		16707
HPV56	L2	247	10	TLVSADNPLF		16708
HPV56	L2	386	8	TINVTAPL		16709
HPV56	L2	136	8	TTPAVLDI		16710
HPV56	L2	288	9	TTRRGGVRF		16711
HPV56	L2	135	9	TTPAVLDI		16712
HPV56	L2	149	9	TVHVSSTHI		16713
HPV56	L2	39	9	TWADKILQW		16714
HPV56	L2	415	10	TWPFVPQSPY		16715
HPV56	L2	52	8	TYFGGLGI		16716
HPV56	L2	112	8	VIESGAGI		16717
HPV56	L2	112	11	VIESGAGIPNF		16718
HPV56	L2	408	9	VLPTGPSTW		16719
HPV56	L2	408	11	VLPTGPSTWPF		16720
HPV56	L2	389	9	VTAPLGNVW		16721
HPV56	L2	104	10	VTLVEESSVI		16722
HPV56	L2	84	8	VTPARPI		16723
HPV56	L2	31	10	VVNKIEQKTW		16723

Table X
A24 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L2	430	8	VYIQGSSF		16724
HPV56	L2	430	10	VYIQGSSFAL		16725
HPV56	L2	430	11	VYIQGSSFALW		16726
HPV56	L2	443	11	YFRRRRRKRI		16727
HPV56	L2	431	9	YIQGSSFAL		16728
HPV56	L2	431	10	YIQGSSFALW		16729
HPV56	L2	71	11	YVPLGSRPSTI		16730
HPV56	L2	319	8	YYYDISPI		16731

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV16	E1	559	10	CPPLITSNI						16732
HPV16	E1	308	9	EPPKLRSTA						16733
HPV16	E1	308	10	EPPKLRSTAA			0.0002	0.0002	0.0200	16734
HPV16	E1	308	11	EPPKLRSTAAA	0.0002	0.0003				16735
HPV16	E1	592	10	FPFDENGPNV						16736
HPV16	E1	592	11	FPFDENGPNVY						16737
HPV16	E1	467	8	IPKKNCIL						16738
HPV16	E1	467	9	IPKKNCILL						16739
HPV16	E1	467	10	IPKKNCILLY						16740
HPV16	E1	599	11	NPVYELNDKNW						16741
HPV16	E1	309	8	PPKLRSTA						16742
HPV16	E1	309	9	PPKLRSTAA	0.0014	0.0003	0.0002	0.0002	0.0024	16743
HPV16	E1	309	10	PPKLRSTAAA						16744
HPV16	E1	309	11	PPKLRSTAAAL						16745
HPV16	E1	560	9	PPLITSNI						16746
HPV16	E1	560	11	PPLITSNINA						16747
HPV16	E1	511	8	QPLADAKI						16748
HPV16	E1	511	10	QPLADAKIGM						16749
HPV16	E1	511	11	QPLADAKIGML						16750
HPV16	E1	552	11	RPLVOLKCPPL						16751
HPV16	E1	93	10	SPLSDISGCV						16752
HPV16	E1	107	9	SPRLKAICI	0.4700	0.0003	0.0004	0.0002	0.0004	16753
HPV16	E1	336	10	TPEWQRQTV						16754
HPV16	E1	336	11	TPEWQRQTVL						16755
HPV16	E1	189	9	TPLTNILNV						16756
HPV16	E1	189	10	TPLTNILNVL						16757
HPV16	E1	244	8	TPSIADSI						16758
HPV16	E1	244	11	TPSIADSIKTL						16759
HPV16	E1	526	11	VPCWNYIDNLL						16760
HPV16	E1	576	8	WPLYHNRL						16761
HPV16	E1	576	9	WPLYHNRLV	0.0520	0.0003	0.1100	0.0002	0.1800	16762
HPV16	E1	576	10	WPLYHNRLVV	0.0950	0.0012	0.0740	0.0002	0.0760	16763
HPV16	E1	576	11	WPLYHNRLVVF						16764
HPV16	E2	105	11	APTGCICKHGY						16765
HPV16	E2	195	11	CPTSVFSSNEV						16766
HPV16	E2	218	9	HPAATHITKA						16767
HPV16	E2	218	10	HPAATHITKAV						16768
HPV16	E2	218	11	HPAATHITKAVA						16769
HPV16	E2	352	11	IPKTTIVSTGF						16770
HPV16	E2	249	8	NPCHITKL						16771
HPV16	E2	249	9	NPCHITKLL						16772
HPV16	E2	207	9	SPEIRQHL						16773
HPV16	E2	207	10	SPEIRQHILA						16774
HPV16	E2	286	10	TPIVHLKGDA						16775
HPV16	E2	59	11	VPTLAVSKNKA						16776
HPV16	E5	69	10	IPFLIIITHA						16777

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV16	E5	30	10	RPLLLSVSTY						16778
HPV16	E6	118	9	CPEEKQRHL	0.0003	0.0002	0.0074	0.0006	0.0002	16779
HPV16	E6	11	9	DPQERPKL	0.0001	0.0001	0.0001	0.0001	0.0002	16780
HPV16	E6	101	8	KPLCDLLI						16781
HPV16	E6	101	11	KPLCDLLIRCI						16782
HPV16	E6	19	8	LPQLCTEL	0.0055					16783
HPV16	E6	65	10	NPYAVCDKCL	0.0001	0.0001	0.0001	0.0001	0.0001	16784
HPV16	E6	15	8	RPRKLQOL						16785
HPV16	E7	46	9	EPDRAHYNI	0.0001	0.0001	0.0031	0.0017	0.0002	16786
HPV16	E7	46	10	EPDRAHYNIV	0.0001	0.0001	0.0001	0.0001	0.0001	16787
HPV16	E7	40	11	GPAGQAEPDRA						16788
HPV16	E7	16	8	QPETTDLY						16789
HPV16	E7	16	10	QPETTDLYCY						16790
HPV16	E7	5	8	TPTLHEYM						16791
HPV16	E7	5	9	TPTLHEYML	0.1100	0.0001	0.0001	0.0001	0.0002	16792
HPV16	E7	5	11	TPTLHEYMLDL						16793
HPV16	L1	461	10	APKEDPLKKY						16794
HPV16	L1	211	10	CPPELINTV						16795
HPV16	L1	211	11	CPPELINTVI						16796
HPV16	L1	465	8	DPLKKYTF						16797
HPV16	L1	465	9	DPLKKYTFW						16798
HPV16	L1	465	11	DPLKKYTFWEV						16799
HPV16	L1	266	8	EPYGDSL						16800
HPV16	L1	266	9	EPYGDSLFF						16801
HPV16	L1	266	10	EPYGDSLFFY						16802
HPV16	L1	266	11	EPYGDSLFFYL						16803
HPV16	L1	76	11	FPIKKNNNKI						16804
HPV16	L1	488	8	FPLGRKFL						16805
HPV16	L1	488	9	FPLGRKFL						16806
HPV16	L1	488	11	FPLGRKFLQA						16807
HPV16	L1	318	8	FPTPSGSM						16808
HPV16	L1	318	9	FPTPSGSMV						16809
HPV16	L1	503	11	KPKFTLGKKA						16810
HPV16	L1	80	8	KPNNKIL						16811
HPV16	L1	80	9	KPNNKILV						16812
HPV16	L1	188	8	KPIGEHW						16813
HPV16	L1	335	8	KPYWLQRA						16814
HPV16	L1	103	9	LPDPNKFGE						16815
HPV16	L1	39	9	LPVPVSKV						16816
HPV16	L1	39	10	LPVPVSKVV						16817
HPV16	L1	31	8	LPSEATVY						16818
HPV16	L1	31	9	LPSEATVYL						16819
HPV16	L1	118	8	NPDTQRLV						16820
HPV16	L1	118	9	NPDTQRLVW						16821
HPV16	L1	118	10	NPDTQRLVWA						16822
HPV16	L1	207	8	NPGDCPPL						16823

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV16	L1	207	10	NPGDCPPLEL						16824
HPV16	L1	207	11	NPGDCPPLELI						16825
HPV16	L1	459	9	PPAPKEDPL						16826
HPV16	L1	435	10	PPGGTLEDY						16827
HPV16	L1	212	9	PPLLEINTV						16828
HPV16	L1	212	10	PPLLEINTVI						16829
HPV16	L1	434	11	PPPGGTLEDY						16830
HPV16	L1	40	8	PPVPVSKV						16831
HPV16	L1	40	9	PPVPVSKVV						16832
HPV16	L1	433	8	QPPPGGTL						16833
HPV16	L1	199	8	SPCTNVAV						16834
HPV16	L1	458	10	TPAPKEDPL						16835
HPV16	L1	320	11	TPSGSMVTSDA						16836
HPV16	L1	514	11	TPITSSTSTA						16837
HPV16	L1	88	9	VPKVSGLQY						16838
HPV16	L1	88	11	VPKVSGLQYRV						16839
HPV16	L1	246	9	VPLDICTSI						16840
HPV16	L1	257	8	YPDYIKMV						16841
HPV16	L2	278	9	APDPDFLDI						16842
HPV16	L2	278	10	APDPDFLDIV						16843
HPV16	L2	278	11	APDPDFLDIVA						16844
HPV16	L2	424	8	APSLIPV						16845
HPV16	L2	119	8	APTSVPSI						16846
HPV16	L2	87	9	APVRPPLTV						16847
HPV16	L2	28	9	CPDIIIPKV						16848
HPV16	L2	239	11	DPAFITTPTKL						16849
HPV16	L2	280	8	DPDFLDIV						16850
HPV16	L2	280	9	DPDFLDIVA						16851
HPV16	L2	280	10	DPDFLDIVAL						16852
HPV16	L2	102	8	DPSIVSLV						16853
HPV16	L2	165	11	DPSVLQPPTPA						16854
HPV16	L2	96	10	DPVGPSPFSI						16855
HPV16	L2	96	11	DPVGPSPFSIV						16856
HPV16	L2	413	8	GPDIPINI						16857
HPV16	L2	99	8	GPSDPSIV						16858
HPV16	L2	99	10	GPSDPSIVSL						16859
HPV16	L2	99	11	GPSDPSIVSLV						16860
HPV16	L2	394	9	IPANTTIPF						16861
HPV16	L2	400	9	IPFGGAYNI						16862
HPV16	L2	400	11	IPFGGAYNIPL						16863
HPV16	L2	216	8	IPGSRPVA						16864
HPV16	L2	216	10	IPGSRPVARL						16865
HPV16	L2	416	9	IPINITDOA						16866
HPV16	L2	428	10	IPVPGSPQY						16867
HPV16	L2	33	9	IPKVEGKTI						16868
HPV16	L2	33	10	IPKVEGKTIA						16869

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV16	L2	73	10	IPLGTRPPTA						16870
HPV16	L2	408	9	IPLVSGPDI						16871
HPV16	L2	408	11	IPLVSGPDIPI						16872
HPV16	L2	196	8	IPMDTFIV						16873
HPV16	L2	126	8	IPPDVSGF						16874
HPV16	L2	126	10	IPPDVSGFSI						16875
HPV16	L2	357	9	LPTSINNGL						16876
HPV16	L2	357	10	LPTSINNGLY						16877
HPV16	L2	462	8	LPYFFSDV						16878
HPV16	L2	462	10	LPYFFSDVSL						16879
HPV16	L2	462	11	LPYFFSDVSLA						16880
HPV16	L2	254	9	NPAYEGIDV						16881
HPV16	L2	206	11	NPNTVTSSTPI						16882
HPV16	L2	160	9	NPTFTDPSV						16883
HPV16	L2	160	10	NPTFTDPSVL						16884
HPV16	L2	29	8	PPDIIPKV						16885
HPV16	L2	127	9	PPDVSGFSI						16886
HPV16	L2	91	8	PPLTVDPV						16887
HPV16	L2	79	8	PPTATDTL						16888
HPV16	L2	79	9	PPTATDTLA						16889
HPV16	L2	79	11	PPTATDTLAPV						16890
HPV16	L2	171	11	PPTPAETGGHF						16891
HPV16	L2	291	11	RPALTSRRGTI						16892
HPV16	L2	90	9	RPPLTVDPV						16893
HPV16	L2	78	9	RPPTATDTL						16894
HPV16	L2	78	10	RPPTATDTLA						16895
HPV16	L2	220	8	RPVARLGL						16896
HPV16	L2	220	9	RPVARLGLY						16897
HPV16	L2	434	8	SPQYTHA						16898
HPV16	L2	434	10	SPQYTHADA						16899
HPV16	L2	173	9	TPAETGGHF						16900
HPV16	L2	173	11	TPAETGGHFTL						16901
HPV16	L2	142	11	TPAILDINNIV						16902
HPV16	L2	214	9	TPIPGSRPV						16903
HPV16	L2	214	10	TPIPGSRPVA						16904
HPV16	L2	345	11	TPSTYTTTSHA						16905
HPV16	L2	245	8	TPTKLITY						16906
HPV16	L2	380	11	TPVPSVPSTSL						16907
HPV16	L2	431	9	VPSPQYTI						16908
HPV16	L2	431	10	VPSPQYTHA						16909
HPV16	L2	431	11	VPSPQYTHI						16910
HPV16	L2	123	8	VPSIPPDV						16911
HPV16	L2	123	11	VPSIPPDVSGF						16912
HPV16	L2	385	9	VPSTLSGY						16913
HPV16	L2	385	10	VPSTLSGYI						16914
HPV16	L2	382	9	VPSVPSTSL						16915

0105T030 0205T030 0305T030 0405T030 0505T030

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B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV18	E1	566	10	CPILLTTNI						16916
HPV18	E1	518	8	EPLDTKV						16917
HPV18	E1	518	9	EPLDTKVA						16918
HPV18	E1	518	10	EPLDTKVAM						16919
HPV18	E1	518	11	EPLDTKVAML						16920
HPV18	E1	599	10	FPFDKNGNPV						16921
HPV18	E1	599	11	FPFDKNGNPVY						16922
HPV18	E1	484	9	GPANTGKSY						16923
HPV18	E1	484	10	GPANTGKSYF						16924
HPV18	E1	576	8	HPAKDNRW						16925
HPV18	E1	576	10	HPAKDNRWPY						16926
HPV18	E1	576	11	HPAKDNRWPYL						16927
HPV18	E1	559	11	KPLIQLKCPPI						16928
HPV18	E1	641	8	NPFGTFKL						16929
HPV18	E1	641	10	NPFGTFKLRA						16930
HPV18	E1	193	9	NPQCTIAQL						16931
HPV18	E1	251	8	NPTIAEGF						16932
HPV18	E1	251	11	NPTIAEGFKTL						16933
HPV18	E1	606	11	NPVYEINDKNW						16934
HPV18	E1	567	9	PPILLTTNI						16935
HPV18	E1	316	8	PPKLRSSV						16936
HPV18	E1	316	9	PPKLRSSVA						16937
HPV18	E1	316	10	PPKLRSSVAA						16938
HPV18	E1	316	11	PPKLRSSVAAL						16939
HPV18	E1	263	9	QPFILYAH	0.0002	0.0003	0.2100	0.0017	0.0034	16940
HPV18	E1	315	9	QPKLRSSV	0.0004	0.0003	0.0002	0.0002	0.0004	16941
HPV18	E1	315	10	QPKLRSSVA	0.0004	0.0003	0.0002	0.0002	0.0390	16942
HPV18	E1	315	11	QPKLRSSVAA						16943
HPV18	E1	447	9	RPIVQFLRY	0.0033	0.0400	0.0002	0.0230	0.0004	16944
HPV18	E1	97	9	SPLGERLEV	0.1300	0.0003	0.0002	0.0002	0.0011	16945
HPV18	E1	110	9	SPRLQEISL	0.6200	0.0008	0.0005	0.0002	0.0004	16946
HPV18	E1	343	8	TPEWQRL						16947
HPV18	E1	343	10	TPEWQRLTI						16948
HPV18	E1	343	11	TPEWQRLTH						16949
HPV18	E1	474	8	TPKKNCLV						16950
HPV18	E1	474	9	TPKKNCLVF						16951
HPV18	E1	307	8	VPETCMLI						16952
HPV18	E1	583	8	WPYLESRI						16953
HPV18	E1	583	10	WPYLESRITV						16954
HPV18	E1	583	11	WPYLESRITVF	0.0067	0.0066	0.0550	0.0140	0.0240	16955
HPV18	E2	261	9	GPVNPLLGA						16956
HPV18	E2	261	10	GPVNPLLGAA						16957
HPV18	E2	352	8	IPDSVQIL						16958
HPV18	E2	352	9	IPDSVQILV						16959
HPV18	E2	352	11	IPDSVQILVGY						16960
HPV18	E2	248	8	RPGHCGLA						16961

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV18	E2	226	9	SPYSSTVS						16962
HPV18	E2	3	10	TPKETLSERL						16963
HPV18	E2	224	9	TPSPYSSTV						16964
HPV18	E2	224	11	TPSPYSSTVS						16965
HPV18	E2	271	11	TPTGNNKRRKL						16966
HPV18	E2	63	11	VPAYNISKS						16967
HPV18	E5	59	8	LPMLLLHI						16968
HPV18	E5	59	10	LPMLLLHIHA						16969
HPV18	E5	59	11	LPMLLLHIHAI						16970
HPV18	E5	23	8	LPSVCMCA						16971
HPV18	E5	23	9	LPSVCMCA						16972
HPV18	E5	23	10	LPSVCMCA						16973
HPV18	E5	23	11	LPSVCMCA						16974
HPV18	E5	45	8	SPATAFTV						16975
HPV18	E5	45	9	SPATAFTV						16976
HPV18	E5	45	10	SPATAFTV						16977
HPV18	E5	45	11	SPATAFTV						16978
HPV18	E5	20	9	VPLLPVCM						16979
HPV18	E5	20	11	VPLLPVCM						16980
HPV18	E6	6	9	DPTRRPVKL	0.0001	0.0001	0.0001	0.0001	0.0002	16981
HPV18	E6	60	10	IPHAACHKCI	0.0065	0.0001	0.0046	0.0001	0.0005	16982
HPV18	E6	110	9	KPLNPAEKL	0.0350	0.0001	0.0001	0.0001	0.0002	16983
HPV18	E6	14	8	LPDLCTEL						16984
HPV18	E6	113	9	NPAEKLRLH	0.0110	0.0001	0.0001	0.0001	0.0002	16985
HPV18	E6	10	8	RPYKLPDL						16986
HPV18	E7	16	8	EPQNEIPV						16987
HPV18	E7	16	10	EPQNEIPVDL						16988
HPV18	E7	16	11	EPQNEIPVDL	0.0001	0.0005	0.0001	0.0001	0.0001	16989
HPV18	E7	55	8	EPQRHTML						16990
HPV18	E7	55	10	EPQRHTMLCM						16991
HPV18	E7	3	9	GPKATLQDI	0.0026	0.0002	0.0003	0.0043	0.0001	16992
HPV18	E7	3	10	GPKATLQDIV	0.0004	0.0001	0.0001	0.0001	0.0002	16993
HPV18	E7	3	11	GPKATLQDIVL	0.0001	0.0001	0.0001	0.0001	0.0001	16994
HPV18	E7	21	11	IPVDLLCHEQL						16995
HPV18	L1	495	9	APAENKDPY						16996
HPV18	L1	223	8	APAEGHW						16997
HPV18	L1	223	9	APAEGHWA						16998
HPV18	L1	549	11	APSATTSSKPA						16999
HPV18	L1	246	10	CPPLELKNV						17000
HPV18	L1	246	11	CPPLELKNV						17001
HPV18	L1	501	8	DPYDKLKF						17002
HPV18	L1	501	9	DPYDKLKF						17003
HPV18	L1	501	11	DPYDKLKF						17004
HPV18	L1	301	8	DPYGDSMF						17005
HPV18	L1	301	9	DPYGDSMF						17006
HPV18	L1	301	11	DPYGDSMF						17007

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV18	L1	56	8	FPFLQMA						17008
HPV18	L1	56	9	FPFLQMAL						17009
HPV18	L1	56	10	FPFLQMALW						17010
HPV18	L1	19	9	GPLYHPRPL						17011
HPV18	L1	19	11	GPLYHPRPLPL						17012
HPV18	L1	543	10	GPRKRSAPSA						17013
HPV18	L1	23	10	HPRPLPLHSI						17014
HPV18	L1	23	11	HPRPLPLHSIL						17015
HPV18	L1	123	9	IPKVSAYQY						17016
HPV18	L1	123	11	IPKVSAYQYRV						17017
HPV18	L1	557	8	KPAKRVRV						17018
HPV18	L1	557	10	KPAKRVRVRA						17019
HPV18	L1	539	11	KPTIGPRKRSA						17020
HPV18	L1	370	8	KPYWLHKA						17021
HPV18	L1	138	9	LDPNKFGL						17022
HPV18	L1	27	8	LPLHSILV						17023
HPV18	L1	27	9	LPLHSILVY						17024
HPV18	L1	27	10	LPLHSILVYM						17025
HPV18	L1	27	11	LPLHSILVYMV						17026
HPV18	L1	15	8	LPLYGPLY						17027
HPV18	L1	74	9	LPSPSVARV						17028
HPV18	L1	74	10	LPSPSVARVV						17029
HPV18	L1	343	9	MPASPGSCV						17030
HPV18	L1	343	10	MPASPGSCVY						17031
HPV18	L1	153	8	NPETQRLV						17032
HPV18	L1	153	9	NPETQRLVW						17033
HPV18	L1	153	10	NPETQRLVWA						17034
HPV18	L1	108	8	NPYFRVPA						17035
HPV18	L1	247	9	PPELKNTV						17036
HPV18	L1	247	10	PPELKNTVL						17037
HPV18	L1	469	8	PPPTTSL						17038
HPV18	L1	469	9	PPPTTSLV						17039
HPV18	L1	75	8	PPPSVARV						17040
HPV18	L1	75	9	PPPSVARVV						17041
HPV18	L1	470	8	PPPTTSLV						17042
HPV18	L1	470	11	PPPTTSLVDY						17043
HPV18	L1	76	8	PPSVARV						17044
HPV18	L1	471	10	PPTTSLVDY						17045
HPV18	L1	25	8	RPLPLHSI						17046
HPV18	L1	25	9	RPLPLHSIL						17047
HPV18	L1	25	10	RPLPLHSILV						17048
HPV18	L1	25	11	RPLPLHSILVY						17049
HPV18	L1	239	11	RPLSQGDCPPL						17050
HPV18	L1	66	8	RPSDNTVY						17051
HPV18	L1	66	9	RPSDNTVYL						17052
HPV18	L1	353	8	SPSPSGSI						17053

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV18	L1	353	9	SPSPSGSIV						17054
HPV18	L1	411	9	SPVPGQYDA						17055
HPV18	L1	398	8	TPSTNLTI						17056
HPV18	L1	398	10	TPSTNLTICA						17057
HPV18	L1	90	9	TPTSIFYHA						17058
HPV18	L1	113	11	VPAGGGNKQDI						17059
HPV18	L1	413	10	VPGQYDATKF						17060
HPV18	L1	281	9	VPLDICQSI						17061
HPV18	L1	468	9	VPPPTTSL						17062
HPV18	L1	468	10	VPPPTTSLV						17063
HPV18	L1	292	9	YPDYLMQSA						17064
HPV18	L1	524	8	YPLGRKKFL						17065
HPV18	L1	524	9	YPLGRKKFLV						17066
HPV18	L1	524	11	YPLGRKKFLVQA						17067
HPV18	L2	421	8	APASTQYI						17068
HPV18	L2	421	10	APASTQYIGI						17069
HPV18	L2	327	9	APSEYIEL						17070
HPV18	L2	27	9	CPDVVVPKV						17071
HPV18	L2	266	11	DPRSDDVPDSDF						17072
HPV18	L2	100	8	DPSIVTLI						17073
HPV18	L2	208	8	EPISSTPL						17074
HPV18	L2	208	11	EPISSTPLPTV						17075
HPV18	L2	257	9	EPVDTLTF						17076
HPV18	L2	94	10	EPVGPTDPSI						17077
HPV18	L2	94	11	EPVGPTDPSIV						17078
HPV18	L2	223	8	GPRLYSRA						17079
HPV18	L2	223	9	GPRLYSRAY						17080
HPV18	L2	97	8	GPTDPSIV						17081
HPV18	L2	97	10	GPTDPSIVTL						17082
HPV18	L2	97	11	GPTDPSIVTLI						17083
HPV18	L2	85	8	GPTRPPVV						17084
HPV18	L2	85	9	GTPRPVVI						17085
HPV18	L2	444	8	IPKKRKRKRV						17086
HPV18	L2	444	10	IPKKRKRVPY						17087
HPV18	L2	444	11	IPKKRKRVPYF						17088
HPV18	L2	72	10	IPLGGRSNTV						17089
HPV18	L2	72	11	IPLGGRSNTVV						17090
HPV18	L2	407	8	LPSTTSVW						17091
HPV18	L2	407	10	LPSTTSVWPI						17092
HPV18	L2	407	11	LPSTTSVWPIV						17093
HPV18	L2	215	8	LPTVRRVA						17094
HPV18	L2	253	11	NPAFEPVDTTL						17095
HPV18	L2	159	9	NPAFSDPSI						17096
HPV18	L2	159	10	NPAFSDPSII						17097
HPV18	L2	238	11	NPEFLTRPSSL						17098
HPV18	L2	28	8	PPDVVPKV						17099

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B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No
HPV18	L2	89	8	PPVVIIEPV						17100
HPV18	L2	284	11	RPALTSRRGTV						17101
HPV18	L2	88	9	RPPVVIIEPV						17102
HPV18	L2	244	8	RPSSLITY						17103
HPV18	L2	119	10	RPTFTGTSGF						17104
HPV18	L2	329	10	SPEYIELQPL						17105
HPV18	L2	329	11	SPEYIELQPLV						17106
HPV18	L2	324	9	SPIAPSPY						17107
HPV18	L2	324	10	SPIAPSPYI						17108
HPV18	L2	418	10	SPTAPASTQY						17109
HPV18	L2	418	11	SPTAPASTQYI						17110
HPV18	L2	375	10	SPTISSASSY						17111
HPV18	L2	213	9	TPLPTVRRV						17112
HPV18	L2	213	10	TPLPTVRRVA						17113
HPV18	L2	144	9	TPSSTSVSI						17114
HPV18	L2	184	9	TPTSGTHGY						17115
HPV18	L2	271	9	VPDSDFMDI						17116
HPV18	L2	271	10	VPDSDFMDII						17117
HPV18	L2	32	9	VPKVEGTL						17118
HPV18	L2	32	10	VPKVEGTTA						17119
HPV18	L2	389	9	VPLTSSWDV						17120
HPV18	L2	389	11	VPLTSSWDVPV						17121
HPV18	L2	170	8	VPQTGEVA						17122
HPV18	L2	170	11	VPQTGEVAGNV						17123
HPV18	L2	361	9	VPSRSTTSF						17124
HPV18	L2	361	10	VPSRSTTSFA						17125
HPV18	L2	361	11	VPSRSTTSFAF						17126
HPV18	L2	359	11	VPVPSRSTTSF						17127
HPV18	L2	397	9	VPVYTGPD						17128
HPV18	L2	397	11	VPVYTGPDITL						17129
HPV18	L2	451	9	VPYFFADGF						17130
HPV18	L2	451	10	VPYFFADGFV						17131
HPV18	L2	451	11	VPYFFADGFVA						17132
HPV18	L2	414	8	WPVNSPTA						17133
HPV18	L2	414	10	WPVNSPTAPA						17134
HPV31	E1	458	8	APNTGKSY						17135
HPV31	E1	458	9	APNTGKSYF						17136
HPV31	E1	458	11	APNTGKSYFGM						17137
HPV31	E1	539	10	CPPLITSNI						17138
HPV31	E1	572	10	FPEDKNGNPV						17139
HPV31	E1	572	11	FPEDKNGNPVY						17140
HPV31	E1	128	11	LPDSGYGNTGV						17141
HPV31	E1	523	11	NPVSDVKKHA						17142
HPV31	E1	579	11	NPVYELSDKNW						17143
HPV31	E1	289	8	PPKLRSTA						17144
HPV31	E1	289	9	PPKLRSTAA	0.0014	0.0003	0.0002	0.0002	0.0024	17145

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV31	E1	289	10	PPKLRSTAAA						17146
HPV31	E1	289	11	PPKLRSTAAAL						17147
HPV31	E1	540	9	PPLIITSNI						17148
HPV31	E1	540	11	PPLIITSNINA						17149
HPV31	E1	491	8	QPLADAKI						17150
HPV31	E1	491	10	QPLADAKIGM						17151
HPV31	E1	491	11	QPLADAKIGML						17152
HPV31	E1	288	9	QPKLRSTA						17153
HPV31	E1	288	10	QPKLRSTAA						17154
HPV31	E1	288	11	QPKLRSTAAA						17155
HPV31	E1	236	9	QPYCLYCHL						17156
HPV31	E1	92	10	SPLSDISSCV						17157
HPV31	E1	106	9	SPRLKAICI	0.4700	0.0003	0.0004	0.0002	0.0004	17158
HPV31	E1	506	10	TPCWHYIDNY						17159
HPV31	E1	506	11	TPCWHYIDNYL						17160
HPV31	E1	316	10	TPEWIERQTV						17161
HPV31	E1	316	11	TPEWIERQTVL						17162
HPV31	E1	169	9	TPTRNILQV						17163
HPV31	E1	169	10	TPTRNILQVL						17164
HPV31	E1	447	8	VPKKNCIL						17165
HPV31	E1	447	9	VPKKNCIL						17166
HPV31	E1	556	8	WPYLHSRL						17167
HPV31	E1	556	9	WPYLHSRLV						17168
HPV31	E1	556	10	WPYLHSRLVV						17169
HPV31	E1	556	11	WPYLHSRLVVF						17170
HPV31	E2	105	11	APTGLCKKHGY						17171
HPV31	E2	289	8	CPATTPII						17172
HPV31	E2	289	10	CPATTPIIIL						17173
HPV31	E2	195	11	FPESVFSDEI						17174
HPV31	E2	257	11	HPNKLRLRGDSV						17175
HPV31	E2	359	11	IPNTVSVSTGY						17176
HPV31	E2	293	10	TPIHLKGDA						17177
HPV31	E2	59	9	VPALSVSKA						17178
HPV31	E2	59	11	VPALSVSKAKA						17179
HPV31	E5	69	10	IPLFVHIITHA						17180
HPV31	E5	30	9	RPLVLSVSV						17181
HPV31	E5	30	10	RPLVLSVSVY						17182
HPV31	E5	30	11	RPLVLSVSVYA						17183
HPV31	E5	55	8	SPLRCFCI						17184
HPV31	E5	55	9	SPLRCFCIY						17185
HPV31	E5	55	10	SPLRCFCIYV						17186
HPV31	E5	55	11	SPLRCFCIYVV						17187
HPV31	E6	111	9	CPEEKQRHIL			0.0074	0.0006	0.0002	17188
HPV31	E6	21	8	IPYDELRL	0.0003	0.0002				17189
HPV31	E6	21	11	IPYDELRLNCV						17190
HPV31	E6	4	9	NPAERPRKL						17191

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV31	E6	8	8	RPRKLHEL						17192
HPV31	E6	8	11	RPRKLHELSSA						17193
HPV31	E6	142	8	RPTETQV						17194
HPV31	E6	58	10	TPHGVCTKCL						17195
HPV31	E7	91	8	CPNCSTRL						17196
HPV31	E7	46	9	EPDTSNYNI						17197
HPV31	E7	46	10	EPDTSNYNIV						17198
HPV31	E7	28	10	LPDSSDEEDV						17199
HPV31	E7	28	11	LPDSSDEEDVI						17200
HPV31	E7	16	10	QPEATDLHCY						17201
HPV31	E7	5	8	TPTLQDYV						17202
HPV31	E7	5	9	TPTLQDYVL						17203
HPV31	E7	5	11	TPTLQDYVLDL						17204
HPV31	L1	433	10	APQKPKEDPF						17205
HPV31	L1	488	10	APSASTTTTPA						17206
HPV31	L1	186	10	CPPELEKNSV						17207
HPV31	L1	186	11	CPPELEKNSVI						17208
HPV31	L1	440	8	DPEKDYVF						17209
HPV31	L1	440	9	DPEKDYVFW						17210
HPV31	L1	440	11	DPEKDYVFWFV						17211
HPV31	L1	241	8	EPYGDITLF						17212
HPV31	L1	241	9	EPYGDITLFF						17213
HPV31	L1	241	10	EPYGDITLFFY						17214
HPV31	L1	241	11	EPYGDITLFFYL						17215
HPV31	L1	463	8	FPLGRKFL						17216
HPV31	L1	463	9	FPLGRKFLL						17217
HPV31	L1	463	11	FPLGRKFLLQA						17218
HPV31	L1	293	8	FPTPSGSM						17219
HPV31	L1	293	9	FPTPSGSMV						17220
HPV31	L1	139	10	GPGTDNRECI						17221
HPV31	L1	52	10	IPKSDNPKKI						17222
HPV31	L1	52	11	IPKSDNPKKIV						17223
HPV31	L1	436	10	KPKEDPFKDY						17224
HPV31	L1	436	11	KPKEDPFKDYV						17225
HPV31	L1	163	8	KPPIGEHW						17226
HPV31	L1	310	8	KPYWMQRA						17227
HPV31	L1	78	9	LPDPNKFGE						17228
HPV31	L1	13	9	LPPVPVSKV						17229
HPV31	L1	13	10	LPPVPVSKVV						17230
HPV31	L1	396	8	NPAILEDW						17231
HPV31	L1	396	10	NPAILEDWNF						17232
HPV31	L1	93	8	NPETQRLV						17233
HPV31	L1	93	9	NPETQRLVW						17234
HPV31	L1	93	10	NPETQRLVWA						17235
HPV31	L1	57	10	NPKKIVPKV						17236
HPV31	L1	187	9	PPELEKNSV						17237

Table X1
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV31	L1	187	10	PPELEKNSVI						17238
HPV31	L1	410	10	PPSGSLEDY						17239
HPV31	L1	14	8	PPVPVSKV						17240
HPV31	L1	14	9	PPVPVSKVV						17241
HPV31	L1	478	11	RPKFKAGKRSA						17242
HPV31	L1	5	8	RPSEATVY						17243
HPV31	L1	5	9	RPSEATVYL						17244
HPV31	L1	174	8	SPCSNNAI						17245
HPV31	L1	182	8	TPGDCPPL						17246
HPV31	L1	182	10	TPGDCPPLLEL						17247
HPV31	L1	409	11	TPPSGSLEDY						17248
HPV31	L1	295	11	TPSGSMVTSDA						17249
HPV31	L1	63	9	VPKVSGLQY						17250
HPV31	L1	63	11	VPKVSGLQYRV						17251
HPV31	L1	221	9	VPLDICNSI						17252
HPV31	L1	232	8	YPDYLMKV						17253
HPV31	L1	232	9	YPDYLMKVA						17254
HPV31	L2	271	9	APDPDFLDI						17255
HPV31	L2	271	10	APDPDFLDII						17256
HPV31	L2	271	11	APDPDFLDIIA						17257
HPV31	L2	240	8	APKQLITY						17258
HPV31	L2	414	8	APTQVFPF						17259
HPV31	L2	414	10	APTQVFPFPL						17260
HPV31	L2	414	11	APTQVFPFLA						17261
HPV31	L2	424	9	APTTQVSI						17262
HPV31	L2	424	10	APTTQVSIF						17263
HPV31	L2	424	11	APTTQVSIFV						17264
HPV31	L2	28	9	CPSDVIPKI						17265
HPV31	L2	273	8	DPDFLDII						17266
HPV31	L2	273	9	DPDFLDIIA						17267
HPV31	L2	273	10	DPDFLDIIAL						17268
HPV31	L2	102	8	DPSIVSLV						17269
HPV31	L2	160	11	DPSVLQPPTPA						17271
HPV31	L2	234	11	DPTFLSAPKQL						17272
HPV31	L2	96	10	DPVGPLDPSI						17273
HPV31	L2	96	11	DPVGPLDPSIV						17274
HPV31	L2	421	10	FPLAPTTQV						17275
HPV31	L2	406	9	GPDVPIEHA						17276
HPV31	L2	99	8	GPLDPSIV						17277
HPV31	L2	99	10	GPLDPSIVSL						17278
HPV31	L2	99	11	GPLDPSIVSLV						17279
HPV31	L2	125	8	HPPTTSGF						17280
HPV31	L2	125	10	HPPTTSGFDI						17281
HPV31	L2	125	11	HPPTTSGFDIA						17282
HPV31	L2	211	8	IPGVRRPA						17283
HPV31	L2	211	10	IPGVRRPARL						17283

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV31	L2	123	10	IPHPPTTS GF						17284
HPV31	L2	401	9	IPFSGPDV						17285
HPV31	L2	401	11	IPFSGPDVPI						17286
HPV31	L2	87	9	IPRPPVSI						17287
HPV31	L2	33	9	IPKIEHTTI						17288
HPV31	L2	33	10	IPKIEHTTIA						17289
HPV31	L2	191	8	IPMDTFIV						17290
HPV31	L2	327	9	NPAGESIEM						17291
HPV31	L2	249	9	NPAYETVNA						17292
HPV31	L2	155	9	NPTFTDPSV						17293
HPV31	L2	155	10	NPTFTDPSVL						17294
HPV31	L2	166	11	PPTPAETSGHLL						17295
HPV31	L2	126	9	PPTTS GF DI						17296
HPV31	L2	126	10	PPTTS GF DIA						17297
HPV31	L2	91	8	PPVSIDPV						17298
HPV31	L2	91	11	PPVSIDPVGPL						17299
HPV31	L2	284	11	RPALTSRRNTV						17300
HPV31	L2	216	8	RPARLGLY						17301
HPV31	L2	216	11	RPARLGLYSKA						17302
HPV31	L2	90	9	RPPVSIDPV						17303
HPV31	L2	78	8	RPSTVSEA						17304
HPV31	L2	78	10	RPSTVSEASI						17305
HPV31	L2	372	11	SPSTAVQSTSA						17306
HPV31	L2	168	9	TPAETSGHLL						17307
HPV31	L2	168	10	TPAETSGHLL						17308
HPV31	L2	141	11	TPAETSGHLL						17309
HPV31	L2	141	10	TPAIDVTSV						17310
HPV31	L2	209	10	TPPGVRRPA						17311
HPV31	L2	427	8	TPQVSIFV						17312
HPV31	L2	409	10	VPIEHAPTQV						17313
HPV31	L2	409	11	VPIEHAPTQVF						17314
HPV31	L2	393	9	VPLSTGFDI						17315
HPV31	L2	393	11	VPLSTGFDIPI						17316
HPV31	L2	73	10	VPLSTRPSTV						17317
HPV31	L2	387	9	VPTNTTVPL						17318
HPV33	E1	3	8	DPEGTINGA						17319
HPV33	E1	3	10	DPEGTINGAGM						17320
HPV33	E1	301	11	EPPKLRSQTCA						17321
HPV33	E1	585	10	FPPDENGPNV						17322
HPV33	E1	585	11	FPPDENGPNVY						17323
HPV33	E1	470	9	GPANTGKSY						17324
HPV33	E1	470	10	GPANTGKSYF						17325
HPV33	E1	293	8	IPETCMVI						17326
HPV33	E1	460	8	IPKKSCML						17327
HPV33	E1	460	9	IPKKSCMLI						17328
HPV33	E1	592	11	NPVYAINDENW						17329

Table XI

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No
HPV33	E1	302	10	PPKLRSTCA						17330
HPV33	E1	302	11	PPKLRSTCAL						17331
HPV33	E1	553	11	PPLLLTSNTNA						17332
HPV33	E1	504	8	QPLSDAKI						17333
HPV33	E1	504	10	QPLSDAKIGM						17334
HPV33	E1	504	11	QPLSDAKIGMI						17335
HPV33	E1	433	9	RPVQLRLRY						17336
HPV33	E1	237	8	SPSVAESL						17337
HPV33	E1	237	10	SPSVAESLKV						17338
HPV33	E1	237	11	SPSVAESLKV						17339
HPV33	E1	329	8	TPIEWIDRL						17340
HPV33	E1	329	10	TPIEWIDRLTV						17341
HPV33	E1	329	11	TPIEWIDRLTVL						17342
HPV33	E1	518	8	TPISWTYI						17343
HPV33	E1	518	11	TPISWTYIDY						17344
HPV33	E1	569	8	WPLYHSRL						17345
HPV33	E1	569	10	WPLYHSRLTV						17346
HPV33	E1	569	11	WPLYHSRLTVF						17347
HPV33	E2	195	10	CPTSISNQI						17348
HPV33	E2	247	9	DPALDNRTA						17349
HPV33	E2	340	11	IPPTVQISTGF						17350
HPV33	E2	294	10	KPYKELYSSM						17351
HPV33	E2	26	8	LPSQIEHW						17352
HPV33	E2	26	10	LPSQIEHWKL						17353
HPV33	E2	26	11	LPSQIEHWKLI						17354
HPV33	E2	341	10	PPTVQISTGF						17355
HPV33	E2	341	11	PPTVQISTGFM						17356
HPV33	E2	238	9	QPLTKLFCA						17357
HPV33	E2	229	9	RPADTTDTA						17358
HPV33	E2	59	11	VPSLLASKTKA						17359
HPV33	E5	59	8	LPMMCINF						17360
HPV33	E5	59	10	LPMMCINFHA						17361
HPV33	E5	20	10	RPLISISTY						17362
HPV33	E5	20	11	RPLISISTYA						17363
HPV33	E5	45	9	SPLKIFFCY						17364
HPV33	E5	45	10	SPLKIFFCYL						17365
HPV33	E5	45	11	SPLKIFFCYLL						17366
HPV33	E6	111	9	CPQEKKRHV						17367
HPV33	E6	111	11	CPQEKKRHVDL						17368
HPV33	E6	94	8	KPLNEIL						17369
HPV33	E6	94	11	KPLNEILIRCI						17370
HPV33	E6	35	8	KPLQRSEV						17371
HPV33	E6	35	9	KPLQRSEVY						17372
HPV33	E6	35	11	KPLQRSEVYDF						17373
HPV33	E6	8	8	KPRTLHDL						17374
HPV33	E6	8	11	KPRTLHDLCA						17375

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV33	E6	58	8	NPFGICKL						17376
HPV33	E6	58	10	NPFGICKLCL						17377
HPV33	E7	18	8	EPTDLYCY						17378
HPV33	E7	18	11	EPTDLYCYEQL						17379
HPV33	E7	5	8	KPTLKEYV						17380
HPV33	E7	5	9	KPTLKEYVL						17381
HPV33	E7	5	11	KPTLKEYVLDL						17382
HPV33	E7	46	8	QPATADYY						17383
HPV33	E7	46	9	QPATADYYI						17384
HPV33	E7	46	10	QPATADYYIV						17385
HPV33	E7	40	9	RPDQQAQPA						17386
HPV33	E7	40	11	RPDQQAQPATA						17387
HPV33	E7	16	8	YPEPTDLY						17388
HPV33	E7	16	10	YPEPTDLYCY						17389
HPV33	E7	16	9	APANDCPPL						17390
HPV33	L1	180	11	APANDCPPLEL						17391
HPV33	L1	483	10	APTSTRITSSA						17392
HPV33	L1	185	10	CPPLELINTI						17393
HPV33	L1	185	11	CPPLELINTII						17394
HPV33	L1	438	8	DPLGKYTF						17395
HPV33	L1	438	9	DPLGKYTFW						17396
HPV33	L1	438	11	DPLGKYTFWEV						17397
HPV33	L1	240	8	EPYGDSL						17398
HPV33	L1	240	9	EPYGDSLFF						17399
HPV33	L1	240	10	EPYGDSLFFF						17400
HPV33	L1	240	11	EPYGDSLFFFL						17401
HPV33	L1	461	8	FPLGRKFL						17402
HPV33	L1	461	9	FPLGRKFLL						17403
HPV33	L1	461	11	FPLGRKFLQA						17404
HPV33	L1	292	8	FPTPSGSM						17405
HPV33	L1	292	9	FPTPSGSMV						17406
HPV33	L1	476	8	KPKLKRAA						17407
HPV33	L1	163	8	KPPTGEHW						17408
HPV33	L1	309	8	KPYWLQRA						17409
HPV33	L1	78	9	LDPNKFGE						17410
HPV33	L1	13	9	LPPVPVSKV						17411
HPV33	L1	13	10	LPPVPVSKVV						17412
HPV33	L1	394	8	NPDILEDW						17413
HPV33	L1	394	10	NPDILEDWQF						17414
HPV33	L1	93	8	NPDTQRLV						17415
HPV33	L1	93	9	NPDTQRLVW						17416
HPV33	L1	93	10	NPDTQRLVWA						17417
HPV33	L1	54	8	NPTNAKKL						17418
HPV33	L1	54	9	NPTNAKKLL						17419
HPV33	L1	54	10	NPTNAKKLLV						17420
HPV33	L1	432	9	PPKEKEDPL						17421

Table XI

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No
HPV33	L1	186	9	PPLELINTI						17422
HPV33	L1	186	10	PPLELINTII						17423
HPV33	L1	407	11	PPSASLQDITY						17424
HPV33	L1	408	10	PPSASLQDITY						17425
HPV33	L1	164	11	PPTGEHWGKGV						17426
HPV33	L1	14	8	PPVPVSKV						17427
HPV33	L1	14	9	PPVPVSKVV						17428
HPV33	L1	139	10	QPQADNRECL						17429
HPV33	L1	5	8	RPSEATVY						17430
HPV33	L1	5	9	RPSEATVYL						17431
HPV33	L1	406	8	TPPPSASL						17432
HPV33	L1	63	9	VPKVSGLQY						17433
HPV33	L1	63	11	VPKVSGLQYRV						17434
HPV33	L1	431	10	VPPKEKEDPL						17435
HPV33	L2	173	9	APAEASGHF						17436
HPV33	L2	173	10	APAEASGHFI						17437
HPV33	L2	173	11	APAEASGHFIF						17438
HPV33	L2	276	9	APDPDFLDI						17439
HPV33	L2	276	10	APDPDFLDII						17440
HPV33	L2	276	11	APDPDFLDIIA						17441
HPV33	L2	120	10	APSIPTSGF						17442
HPV33	L2	27	9	CPDVIPIKV						17443
HPV33	L2	239	11	DPAFLTSPHKL						17444
HPV33	L2	278	8	DPDFLDII						17445
HPV33	L2	278	9	DPDFLDIIA						17446
HPV33	L2	278	10	DPDFLDIIAL						17447
HPV33	L2	261	8	DPEDTLQF						17448
HPV33	L2	77	9	DPPTAAIPL						17449
HPV33	L2	165	9	EPSVLHPA						17450
HPV33	L2	165	11	EPSVLHPAPA						17451
HPV33	L2	428	8	FPFDITV						17452
HPV33	L2	428	11	FPFDITVVDGA						17453
HPV33	L2	415	8	FPTSSPFV						17454
HPV33	L2	415	10	FPTSSPFVPI						17455
HPV33	L2	456	8	FPYFFTDV						17456
HPV33	L2	456	10	FPYFFTDVVRV						17457
HPV33	L2	456	11	FPYFFTDVVRVA						17458
HPV33	L2	407	8	GPDIPSPL						17459
HPV33	L2	407	9	GPDIPSPLF						17460
HPV33	L2	98	8	GPLDSSIV						17461
HPV33	L2	98	10	GPLDSSIVSL						17462
HPV33	L2	98	11	GPLDSSIVSLI						17463
HPV33	L2	170	8	HPPAPAEA						17464
HPV33	L2	216	8	IPGSRPVA						17465
HPV33	L2	216	10	IPGSRPVARL						17466
HPV33	L2	32	9	IPKVEGSTI						17467

0123456789101112131415161718192021222324252627282930313233343536373839404142434445464748495051525354555657585960616263646566676869707172737475767778798081828384858687888990919293949596979899100

Table XI
B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV33	L2	32	10	IPKVEGSTIA						17468
HPV33	L2	394	11	IPLNTGFDTPV						17469
HPV33	L2	83	10	IPLQPIRPPV						17470
HPV33	L2	196	8	IPMDTFVV						17471
HPV33	L2	123	9	IPTPSGFDV						17472
HPV33	L2	160	9	NPTFTPEPSV						17473
HPV33	L2	160	10	NPTFTPEPSVL						17474
HPV33	L2	171	11	PPAPAEASGHF						17475
HPV33	L2	28	8	PPDVIPKV						17476
HPV33	L2	78	8	PPTAAIPL						17477
HPV33	L2	78	11	PPTAAIPLQPI						17478
HPV33	L2	90	8	PPVTVDIV						17479
HPV33	L2	90	11	PPVTVDIVGPI						17480
HPV33	L2	86	9	QPIRPPVTV						17481
HPV33	L2	346	11	QPLHDTSTSSY						17482
HPV33	L2	289	11	RPAITSRRHTV						17483
HPV33	L2	89	9	RPPVTVDIV						17484
HPV33	L2	220	8	RPVARLGL						17485
HPV33	L2	220	9	RPVARLGLY						17486
HPV33	L2	274	8	SPAPDPDF						17487
HPV33	L2	274	9	SPAPDPDFL						17488
HPV33	L2	274	11	SPAPDPDFLDI						17489
HPV33	L2	425	9	SPFFPFDIT						17490
HPV33	L2	425	10	SPFFPFDITV						17491
HPV33	L2	425	11	SPFFPFDITVV						17492
HPV33	L2	419	9	SPFVPISPF						17493
HPV33	L2	419	10	SPFVPISPFF						17494
HPV33	L2	245	8	SPIKLITY						17495
HPV33	L2	329	10	SPIVPLDITV						17496
HPV33	L2	412	10	SPLFFTSSPF						17497
HPV33	L2	412	11	SPLFFTSSPFV						17498
HPV33	L2	185	9	SPTVSTQSY						17499
HPV33	L2	138	10	TPAIINVSV						17500
HPV33	L2	214	9	TPIPGSRPV						17501
HPV33	L2	214	10	TPIPGSRPVA						17502
HPV33	L2	375	10	TPMQIISYSTF						17503
HPV33	L2	375	11	TPMQIISYSTFA						17504
HPV33	L2	125	11	TPSGFDVTTSA						17505
HPV33	L2	402	9	TPVMSGPDI						17506
HPV33	L2	72	10	VPIGTDPTA						17507
HPV33	L2	72	11	VPIGTDPTAA						17508
HPV33	L2	422	9	VPISPPFF						17509
HPV33	L2	338	8	VPNEQVEL						17510
HPV33	L2	338	11	VPNEQVELQPL						17511
HPV45	E1	552	10	CPPILLTSNI						17512
HPV45	E1	562	8	DPAKDNKW						17513

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV45	E1	562	10	DPAKDNKWPY						17514
HPV45	E1	562	11	DPAKDNKWPYL						17515
HPV45	E1	179	9	DPHCSITEL						17516
HPV45	E1	504	8	EPLADTKV						17517
HPV45	E1	504	9	EPLADTKVA						17518
HPV45	E1	504	10	EPLADTKVAM						17519
HPV45	E1	504	11	EPLADTKVAML						17520
HPV45	E1	301	9	EPPKLRSSV						17521
HPV45	E1	301	10	EPPKLRSSVA						17522
HPV45	E1	301	11	EPPKLRSSVAA						17523
HPV45	E1	585	10	FPFDKNGNPV						17524
HPV45	E1	585	11	FPFDKNGNPVY						17525
HPV45	E1	470	9	GPANTGKSY						17526
HPV45	E1	470	10	GPANTGKSYF						17527
HPV45	E1	627	9	IPFGTFKCV						17528
HPV45	E1	249	9	KPATLYAHI						17529
HPV45	E1	545	11	KPLLQLKCPPI						17530
HPV45	E1	237	8	NPTVAEGF						17531
HPV45	E1	592	11	NPTVAEGFKTL						17532
HPV45	E1	592	11	NPVYEINDKNW						17533
HPV45	E1	553	9	PPILLTSNI						17534
HPV45	E1	302	8	PPKLRSSV						17535
HPV45	E1	302	9	PPKLRSSVA						17536
HPV45	E1	302	10	PPKLRSSVAA						17537
HPV45	E1	302	11	PPKLRSSVAAL						17538
HPV45	E1	433	9	RPVQFLRY	0.0033	0.0400	0.0002	0.0230	0.0004	17539
HPV45	E1	97	9	SPLGEQLSV						17540
HPV45	E1	110	9	SPRLQEISL	0.6200	0.0008	0.0005	0.0002	0.0004	17541
HPV45	E1	329	8	TPEWIQLR						17542
HPV45	E1	329	10	TPEWIQLRTI						17543
HPV45	E1	329	11	TPEWIQLRTH						17544
HPV45	E1	460	8	TPKKNCIL						17545
HPV45	E1	460	9	TPKKNCILL						17546
HPV45	E1	460	10	TPKKNCILLY						17547
HPV45	E1	293	8	VPETCMLI						17548
HPV45	E1	569	8	WPLYESRV						17549
HPV45	E1	569	10	WPLYESRVTV						17550
HPV45	E1	569	11	WPLYESRVTVF						17551
HPV45	E2	355	9	IPNSVQISV						17552
HPV45	E2	355	11	IPNSVQISVGY						17553
HPV45	E2	240	8	KPHIQTPA						17554
HPV45	E2	66	10	PPINISKSKA						17555
HPV45	E2	5	10	TPKESLSERL						17556
HPV45	E2	238	10	TPKPHIQTPA						17557
HPV45	E2	65	11	VPPINISKSKA						17558
HPV45	E6	6	9	DPTQRPYKL						17559

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B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV45	E6	14	8	LPDLCTEL						17560
HPV45	E6	113	9	NPAEKRRHL						17561
HPV45	E6	10	8	RPYKLPDL						17562
HPV45	E7	22	8	DPVDLLCY						17563
HPV45	E7	22	11	DPVDLLCYEQL						17564
HPV45	E7	16	9	EPQNELDPV						17565
HPV45	E7	16	11	EPQNELDPVDL						17566
HPV45	E7	56	8	EPQRHKIL						17567
HPV45	E7	56	10	EPQRHKILCV						17568
HPV45	E7	3	9	GPRATLQEI						17569
HPV45	E7	3	10	GPRATLQEIV						17570
HPV45	E7	3	11	GPRATLQEIVL						17571
HPV45	L1	212	10	CPPLELKNTI						17572
HPV45	L1	212	11	CPPLELKNTII						17573
HPV45	L1	386	8	DPTKFKHY						17574
HPV45	L1	469	8	DPYDKLKF						17575
HPV45	L1	469	9	DPYDKLKFW						17576
HPV45	L1	469	11	DPYDKLKFWTV						17577
HPV45	L1	267	8	DPYGDSMF						17578
HPV45	L1	267	9	DPYGDSMFF						17579
HPV45	L1	267	11	DPYGDSMFFCL						17580
HPV45	L1	21	8	FPIELQMA						17581
HPV45	L1	21	9	FPIELQMAL						17582
HPV45	L1	21	10	FPIELQMALW						17583
HPV45	L1	511	8	GPRKRPA						17584
HPV45	L1	338	8	KPYWLHKA						17585
HPV45	L1	104	9	LPDPNKFGL						17586
HPV45	L1	39	9	LPPPSVARV						17587
HPV45	L1	39	10	LPPPSVARVV						17588
HPV45	L1	119	8	NPETQRLV						17589
HPV45	L1	119	9	NPETQRLVW						17590
HPV45	L1	119	10	NPETQRLVWA						17591
HPV45	L1	73	11	NPYFRVVPSPA						17592
HPV45	L1	464	8	PPEKQDPY						17593
HPV45	L1	464	11	PPEKQDPYDKL						17594
HPV45	L1	213	9	PPELKNTI						17595
HPV45	L1	213	10	PPELKNTII						17596
HPV45	L1	437	8	PPPTTSL						17597
HPV45	L1	437	9	PPPTTSLV						17598
HPV45	L1	40	8	PPPSVARV						17599
HPV45	L1	40	9	PPPSVARVV						17600
HPV45	L1	438	8	PPPTTSLV						17601
HPV45	L1	438	11	PPPTTSLVDY						17602
HPV45	L1	41	8	PPSVARVV						17603
HPV45	L1	439	10	PPTTSLVDY						17604
HPV45	L1	208	8	QPGDCPPL						17605

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No
HPV45	L1	208	10	QPGDCPPLEL						17606
HPV45	L1	515	9	RPAASTSTA						17607
HPV45	L1	525	8	RPAKRVRI						17608
HPV45	L1	31	8	RPSDSTVY						17609
HPV45	L1	31	9	RPSDSTVYL						17610
HPV45	L1	507	11	RPTIGPRKRP						17611
HPV45	L1	321	8	SPSPSGSI						17612
HPV45	L1	463	9	TPPEKQDPY						17613
HPV45	L1	189	8	VPAIGEHW						17614
HPV45	L1	189	9	VPAIGEHWA						17615
HPV45	L1	89	9	VPKVSAYQY						17616
HPV45	L1	89	11	VPKVSAYQYRV						17617
HPV45	L1	247	9	VPLDICQSI						17618
HPV45	L1	381	10	VPNTYDPTKF						17619
HPV45	L1	436	9	VPPPTTSL						17620
HPV45	L1	436	10	VPPPTTSLV						17621
HPV45	L1	79	10	VPSGAGNKQA						17622
HPV45	L1	79	11	VPSGAGNKQAV						17623
HPV45	L1	258	9	YPDYLMQSA						17624
HPV45	L1	492	8	YPLGRKKFL						17625
HPV45	L1	492	9	YPLGRKKFLV						17626
HPV45	L1	492	11	YPLGRKKFLVQA						17627
HPV45	L2	27	9	CPPDVINKV						17628
HPV45	L2	100	8	DPSIVTLV						17629
HPV45	L2	208	8	EPISSTPL						17630
HPV45	L2	208	11	EPISSTPLPTV						17631
HPV45	L2	257	9	EPLDTTSLF						17632
HPV45	L2	266	11	EPTSNVPDSDF						17633
HPV45	L2	94	10	EPVGTDPST						17634
HPV45	L2	94	11	EPVGTDPSTIV						17635
HPV45	L2	445	8	FPKKRRRI						17636
HPV45	L2	445	10	FPKKRRKRIPY						17637
HPV45	L2	445	11	FPKKRRKRIPYF						17638
HPV45	L2	223	8	GPRLYSRA						17639
HPV45	L2	97	8	GPTDPSIV						17640
HPV45	L2	97	10	GPTDPSIVTL						17641
HPV45	L2	97	11	GPTDPSIVTLV						17642
HPV45	L2	85	8	GPTRPPVV						17643
HPV45	L2	85	9	GPTRPPVVI						17644
HPV45	L2	244	8	HPSSLVTF						17645
HPV45	L2	452	9	IPYFFADGF						17646
HPV45	L2	452	10	IPYFFADGFV						17647
HPV45	L2	452	11	IPYFFADGFVA						17648
HPV45	L2	408	8	LPSHTPMW						17649
HPV45	L2	377	9	MPSTAASSY						17650
HPV45	L2	159	9	NPAFSDPSI						17651

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV45	L2	159	10	NPAFSDPSII						17652
HPV45	L2	253	11	NPAYEPLDTTL						17653
HPV45	L2	355	10	PPASTTPSTI						17654
HPV45	L2	28	8	PPDVINKV						17655
HPV45	L2	354	11	PPASTTPSTI						17656
HPV45	L2	89	8	PPVVEIPV						17657
HPV45	L2	284	11	RPALSSRRGTV						17658
HPV45	L2	88	9	RPPVVEIPV						17659
HPV45	L2	324	9	SPIAATEEI						17660
HPV45	L2	324	11	SPIAATEEIEL						17661
HPV45	L2	419	10	SPTNASTITV						17662
HPV45	L2	419	11	SPTNASTITV						17663
HPV45	L2	137	11	TPAVLDITPTV						17664
HPV45	L2	213	9	TPLPVRRV						17665
HPV45	L2	360	9	TPSTHKSF						17666
HPV45	L2	360	11	TPSTHKSFTY						17667
HPV45	L2	184	9	TPTS GSHGY						17668
HPV45	L2	144	9	TPTVDSVSI						17669
HPV45	L2	271	9	VPDSDFMDI						17670
HPV45	L2	271	10	VPDSDFMDII						17671
HPV45	L2	398	9	VPIYTGPI						17672
HPV45	L2	398	10	VPIYTGPII						17673
HPV45	L2	398	11	VPIYTGPIIL						17674
HPV45	L2	72	10	VPLGGRSNTV						17675
HPV45	L2	72	11	VPLGGRSNTVV						17676
HPV45	L2	390	9	VPLTSAWDV						17677
HPV45	L2	390	11	VPLTSAWDVPI						17678
HPV45	L2	170	11	VPOGTGEVSGNI						17679
HPV45	L2	119	10	VPTFTGTSF						17680
HPV45	L2	415	9	WPSTSTNA						17681
HPV45	L2	370	8	YPKYSLTM						17682
HPV56	E2	138	11	CPDSVSSTCRY						17683
HPV56	E2	243	10	EPNRLKCCRY						17684
HPV56	E2	229	9	HPGDKTTPV						17685
HPV56	E2	229	10	HPGDKTTPVV						17686
HPV56	E2	300	8	IPVVYRLV						17687
HPV56	E2	300	9	IPVVYRLVW						17688
HPV56	E2	182	8	RPGKRPRRL						17689
HPV56	E2	186	9	RPRLRESEF						17690
HPV56	E2	151	9	SPVETVNEY						17691
HPV56	E2	2	9	VPCLQVCKA						17692
HPV56	E2	2	11	VPCLQVCKAKA						17693
HPV56	E6	61	8	FPYAVCRV						17694
HPV56	E6	61	10	FPYAVCRVCL						17695
HPV56	E6	61	11	FPYAVCRVCLL						17696
HPV56	E6	24	8	IPLDLRL						17697

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Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV56	E6	24	11	IPIDLRSLSCV						17698
HPV56	E6	7	9	NPQERPRSL						17699
HPV56	E6	11	8	RPRSLHL						17700
HPV56	E6	11	11	RPRSLHHLSEV						17701
HPV56	E6	111	10	SPLTPEEKQL						17702
HPV56	E7	46	8	RPQQARQA						17703
HPV56	E7	16	8	TPQTEIDL						17704
HPV56	E7	63	8	VPCCECKF						17705
HPV56	E7	63	9	VPCCECKFV						17706
HPV56	E7	63	10	VPCCECKFVV						17707
HPV56	E7	5	8	VPTLQDVV						17708
HPV56	E7	5	9	VPTLQDVL						17709
HPV56	E7	5	11	VPTLQDVLLEL						17710
HPV56	L1	521	9	APTSTSTPA						17711
HPV56	L1	219	11	CPPLALINTPI						17712
HPV56	L1	472	8	DPLAKYKF						17713
HPV56	L1	472	9	DPLAKYKFW						17714
HPV56	L1	472	11	DPLAKYKFWDV						17715
HPV56	L1	11	8	DPPLHYGL						17716
HPV56	L1	11	10	DPPLHYGLCI						17717
HPV56	L1	11	11	DPPLHYGLCIF						17718
HPV56	L1	318	8	EPSPSSVY						17719
HPV56	L1	318	9	EPSPSSVYV						17720
HPV56	L1	318	10	EPSPSSVYVA						17721
HPV56	L1	30	8	FPFLQMA						17722
HPV56	L1	30	10	FPFLQMATW						17723
HPV56	L1	495	8	FPLGRKFL						17724
HPV56	L1	495	9	FPLGRKFLM						17725
HPV56	L1	495	11	FPLGRKFLMQL						17726
HPV56	L1	96	9	IPKVSAYQY						17727
HPV56	L1	96	11	IPKVSAYQYRV						17728
HPV56	L1	343	8	KPYWLQRA						17729
HPV56	L1	111	9	LPDPNKFGL						17730
HPV56	L1	48	9	LPPTPVSKV						17731
HPV56	L1	48	10	LPPTPVSKVV						17732
HPV56	L1	48	11	LPPTPVSKVVA						17733
HPV56	L1	126	8	NPQERLV						17734
HPV56	L1	126	9	NPQERLVW						17735
HPV56	L1	126	10	NPQERLVWA						17736
HPV56	L1	220	10	PPLALINTPI						17737
HPV56	L1	12	9	PPLHYGLCI						17738
HPV56	L1	12	10	PPLHYGLCIF						17739
HPV56	L1	12	11	PPLHYGLCIFL						17740
HPV56	L1	319	8	PPSSSVYV						17741
HPV56	L1	319	9	PPSSSVYVA						17742
HPV56	L1	320	8	PPSSSVYVA						17743

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B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV56	L1	466	9	PTEKQDPL						17744
HPV56	L1	466	10	PTEKQDPLA						17745
HPV56	L1	49	8	PPTPVSKV						17746
HPV56	L1	49	9	PPTPVSKVV						17747
HPV56	L1	49	10	PPTPVSKVVA						17748
HPV56	L1	441	11	PVATSLDKY						17749
HPV56	L1	465	10	QPTEKQDPL						17750
HPV56	L1	465	11	QPTEKQDPLA						17751
HPV56	L1	40	8	RPSKVKVY						17752
HPV56	L1	40	9	RPSKVKVYL						17753
HPV56	L1	440	8	SPVATSL						17754
HPV56	L1	196	8	TPAMGEHW						17755
HPV56	L1	227	8	TPIEDGDM						17756
HPV56	L1	227	9	TPIEDGDMI						17757
HPV56	L1	328	11	TPSGSMITSEA						17758
HPV56	L1	51	8	TPVSKVVA						17759
HPV56	L1	265	9	YPDYLKMSA						17760
HPV56	L1	265	11	YPDYLKMSADA						17761
HPV56	L2	271	9	APDPDFMNI						17762
HPV56	L2	271	10	APDPDFMNIV						17763
HPV56	L2	271	11	APDPDFMNIVA						17764
HPV56	L2	358	9	APGLSSQSV						17765
HPV56	L2	358	10	APGLSSQSVA						17766
HPV56	L2	391	11	APLGNVWETPF						17767
HPV56	L2	170	11	APQTGEVSGNI						17768
HPV56	L2	223	8	APRLYRKA						17769
HPV56	L2	223	9	APRLYRKAF						17770
HPV56	L2	27	9	CPEDVVNKI						17771
HPV56	L2	238	9	DPAFLDRPA						17772
HPV56	L2	238	11	DPAFLDRPATL						17773
HPV56	L2	273	8	DPDFMNIV						17774
HPV56	L2	273	9	DPDFMNIVA						17775
HPV56	L2	273	10	DPDFMNIVAL						17776
HPV56	L2	100	8	DPSIVTLV						17777
HPV56	L2	208	8	EPISSTPI						17778
HPV56	L2	208	11	EPISSTPIPGF						17779
HPV56	L2	412	8	GPSTWPFV						17780
HPV56	L2	97	8	GPTDPSIV						17781
HPV56	L2	97	10	GPTDPSIVTL						17782
HPV56	L2	97	11	GPTDPSIVTLV						17783
HPV56	L2	215	8	IPGFRRIA						17784
HPV56	L2	215	9	IPGFRRIAA						17785
HPV56	L2	195	8	IPMQTFAV						17786
HPV56	L2	119	10	IPNFTGSGGF						17787
HPV56	L2	453	10	IPYFFADGDV						17788
HPV56	L2	453	11	IPYFFADGDVA						17789

62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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B07 Supermotif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	B*0702	B*3501	B*5101	B*5301	B*5401	Seq. Id. No.
HPV56	L2	376	8	KPSTLSFA						17790
HPV56	L2	373	8	LPIKPSTL						17791
HPV56	L2	373	10	LPIKPSTLSF						17792
HPV56	L2	373	11	LPIKPSTLSFA						17793
HPV56	L2	409	8	LPTGPSTW						17794
HPV56	L2	409	10	LPTGPSTWPF						17795
HPV56	L2	409	11	LPTGPSTWPFV						17796
HPV56	L2	253	11	NPLFEGTDTSL						17797
HPV56	L2	159	9	NPLFIDPPV						17798
HPV56	L2	159	10	NPLFIDPPVI						17799
HPV56	L2	89	8	PPIVVESV						17800
HPV56	L2	335	10	QPLLSANNSF						17801
HPV56	L2	284	11	RPAFTTRGGV						17802
HPV56	L2	244	8	RPATLWSA						17803
HPV56	L2	88	9	RPPIVVESV						17804
HPV56	L2	77	8	RPSTIVDV						17805
HPV56	L2	77	11	RPSTIVDVTPA						17806
HPV56	L2	324	9	SPIAQAEI						17807
HPV56	L2	324	11	SPIAQAEIEM						17808
HPV56	L2	266	11	SPSGVAPDPDF						17809
HPV56	L2	422	9	SPYDVTHDV						17810
HPV56	L2	422	10	SPYDVTHDVY						17811
HPV56	L2	422	11	SPYDVTHDVYI						17812
HPV56	L2	85	8	TPARPIV						17813
HPV56	L2	85	9	TPARPIVV						17814
HPV56	L2	399	9	TPFYSGPDI						17815
HPV56	L2	399	10	TPFYSGPDIV						17816
HPV56	L2	399	11	TPFYSGPDIVL						17817
HPV56	L2	213	9	TPIPGFRI						17818
HPV56	L2	213	10	TPIPGFRIA						17819
HPV56	L2	213	11	TPIPGFRIAA						17820
HPV56	L2	368	8	TPSAHLPI						17821
HPV56	L2	184	9	TPTSGIHSY						17822
HPV56	L2	144	9	TPTSSTVIIV						17823
HPV56	L2	72	10	VPLGSRPSTI						17824
HPV56	L2	72	11	VPLGSRPSTIV						17825
HPV56	L2	419	8	VPQSPYDV						17826
HPV56	L2	416	9	WPFVPQSPY						17827
HPV56	L2	416	11	WPFVPQSPYDV						17828

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	10	67	AHALFTAQEA	17829
HPV16	E1	9	203	AKAAMLAKF	17830
HPV16	E1	9	209	AKFKELYGV	17831
HPV16	E1	11	209	AKFKELYGVSF	17832
HPV16	E1	9	516	AKIGMLDDA	17833
HPV16	E1	11	516	AKIGMLDDATV	17834
HPV16	E1	8	399	AKIVKDCA	17835
HPV16	E1	10	399	AKIVKDCATM	17836
HPV16	E1	8	76	AKQHRDAV	17837
HPV16	E1	10	76	AKQHRDAVQV	17838
HPV16	E1	11	76	AKQHRDAVQVL	17839
HPV16	E1	9	627	DKENDGDSL	17840
HPV16	E1	8	606	DKNWKSFF	17841
HPV16	E1	9	431	DRVDDGGDW	17842
HPV16	E1	10	416	EKKQMSMSQW	17843
HPV16	E1	11	416	EKKQMSMSQWI	17844
HPV16	E1	8	26	EKKTGDAl	17845
HPV16	E1	8	291	EKLLSKLL	17846
HPV16	E1	10	291	EKLLSKLLCV	17847
HPV16	E1	11	116	EKQSRRAKRRL	17848
HPV16	E1	10	182	ERHTICQTPL	17849
HPV16	E1	9	211	EKELYGVSF	17850
HPV16	E1	11	226	FKSNKSTCCDW	17851
HPV16	E1	10	284	GKNRETIEKL	17852
HPV16	E1	11	284	GKNRETIEKLL	17853
HPV16	E1	9	482	GKSLFGMSL	17854
HPV16	E1	10	482	GKSLFGMSLM	17855
HPV16	E1	8	79	HRDAVQVL	17856
HPV16	E1	8	251	IKTLLQQY	17857
HPV16	E1	10	251	IKTLLQQYCL	17858
HPV16	E1	11	251	IKTLLQQYCLY	17859
HPV16	E1	8	426	IKYRCDRV	17860
HPV16	E1	8	550	KHRPLVQL	17861
HPV16	E1	8	469	KKNCILLY	17862
HPV16	E1	10	469	KKNCILLYGA	17863
HPV16	E1	11	469	KKNCILLYGAA	17864
HPV16	E1	9	417	KKQMSMSQW	17865
HPV16	E1	10	417	KKQMSMSQWI	17866
HPV16	E1	8	413	KRAEKKQM	17867
HPV16	E1	10	413	KRAEKKQMSM	17868
HPV16	E1	9	87	KRKYLVSPL	17869
HPV16	E1	10	262	LHIQSLACSW	17870
HPV16	E1	8	579	LHNRLVVF	17871
HPV16	E1	10	579	LIINRLVVF	17872
HPV16	E1	8	557	LKCPPLLI	17873
HPV16	E1	8	460	LKRFLQGI	17874

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	10	86	LKRKYLVSPL	17875
HPV16	E1	9	393	LKSNSQAKI	17876
HPV16	E1	10	393	LKSNSQAKIV	17877
HPV16	E1	8	198	LKTSNAKA	17878
HPV16	E1	9	198	LKTSNAKAA	17879
HPV16	E1	10	198	LKTSNAKAAM	17880
HPV16	E1	11	198	LKTSNAKAAML	17881
HPV16	E1	9	536	LRNALDGNL	17882
HPV16	E1	10	536	LRNALDGNLV	17883
HPV16	E1	8	312	LRSTAAAL	17884
HPV16	E1	9	312	LRSTAAALY	17885
HPV16	E1	10	312	LRSTAAALYW	17886
HPV16	E1	11	312	LRSTAAALYWY	17887
HPV16	E1	8	446	LRYYQGVF	17888
HPV16	E1	9	446	LRYYQGVFEM	17889
HPV16	E1	11	446	LRYYQGVFMSF	17890
HPV16	E1	8	491	MKFLQGSV	17891
HPV16	E1	9	491	MKFLQGSVI	17892
HPV16	E1	11	491	MKFLQGSVICF	17893
HPV16	E1	8	229	NKSTCGDW	17894
HPV16	E1	10	229	NKSTCGDWCI	17895
HPV16	E1	11	229	NKSTCGDWCIA	17896
HPV16	E1	8	286	NRETIEKL	17897
HPV16	E1	9	286	NRETIEKLL	17898
HPV16	E1	8	581	NRLVVFTF	17899
HPV16	E1	8	468	PKKNCILL	17900
HPV16	E1	9	468	PKKNCILLY	17901
HPV16	E1	11	468	PKKNCILLYGA	17902
HPV16	E1	8	310	PKLRSTAA	17903
HPV16	E1	9	310	PKLRSTAAA	17904
HPV16	E1	10	310	PKLRSTAAAL	17905
HPV16	E1	11	310	PKLRSTAAALY	17906
HPV16	E1	8	108	PRKKAICI	17907
HPV16	E1	8	78	QHIRDAVQV	17908
HPV16	E1	9	78	QHIRDAVQVL	17909
HPV16	E1	9	347	QHSFNDCTF	17910
HPV16	E1	11	347	QHSFNDCTFEL	17911
HPV16	E1	10	341	QRQTVLQHSF	17912
HPV16	E1	11	150	RHETETPCSQY	17913
HPV16	E1	9	183	RHTICQTP	17914
HPV16	E1	11	410	RHYKRAEKKQM	17915
HPV16	E1	8	88	RKYLVSPL	17916
HPV16	E1	11	88	RKYLVSPLSDI	17917
HPV16	E1	11	124	RRLFESEDSGY	17918
HPV16	E1	8	506	SHFWLQPL	17919
HPV16	E1	9	506	SHFWLQPLA	17920

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	11	506	SHFWLQPLADA	17921
HPV16	E1	9	295	SKLLCVSPM	17922
HPV16	E1	11	295	SKLLCVSPMCM	17923
HPV16	E1	10	504	SKSHFWLQPL	17924
HPV16	E1	11	504	SKSHFWLQPLA	17925
HPV16	E1	8	119	SRAAKRRL	17926
HPV16	E1	9	119	SRAAKRRLF	17927
HPV16	E1	9	614	SRTWSRLSL	17928
HPV16	E1	10	574	SRWPYLHNRL	17929
HPV16	E1	11	574	SRWPYLHNRLV	17930
HPV16	E1	11	402	VKDCATMCRHY	17931
HPV16	E1	9	549	VKHRPLVQL	17932
HPV16	E1	8	439	WKQIVMFL	17933
HPV16	E1	10	439	WKQIVMFLRY	17934
HPV16	E1	9	609	WKSFFRTW	17935
HPV16	E1	10	281	YKCGKNRETI	17936
HPV16	E1	9	412	YKRAEKKQM	17937
HPV16	E1	11	412	YKRAEKKQMSM	17938
HPV16	E1	8	322	YKTGISNI	17939
HPV16	E1	11	322	YKTGISNISEV	17940
HPV16	E2	9	46	AREMGFKHI	17941
HPV16	E2	9	28	DHIDYWVKHM	17942
HPV16	E2	11	28	DHIDYWVKHML	17943
HPV16	E2	8	90	EKWTLDQV	17944
HPV16	E2	10	90	EKWTLDQVSL	17945
HPV16	E2	8	176	EKYSKNKV	17946
HPV16	E2	9	176	EKYSKNKVW	17947
HPV16	E2	11	176	EKYSKNKVWEV	17948
HPV16	E2	8	171	FKDDAEKY	17949
HPV16	E2	8	51	FKHINHQV	17950
HPV16	E2	9	51	FKHINHQVV	17951
HPV16	E2	8	305	FKKHCTLY	17952
HPV16	E2	10	305	FKKHCTLYTA	17953
HPV16	E2	11	305	FKKHCTLYTAV	17954
HPV16	E2	9	323	GHNVKHKSA	17955
HPV16	E2	10	323	GHNVKHKSAI	17956
HPV16	E2	11	323	GHNVKIISAV	17957
HPV16	E2	8	328	HKSAIVTL	17958
HPV16	E2	10	328	HKSAIVTLTY	17959
HPV16	E2	8	258	HRDSVDSA	17960
HPV16	E2	10	258	HRDSVDSAPI	17961
HPV16	E2	11	258	HRDSVDSAPIL	17962
HPV16	E2	8	110	IKKHGYTV	17963
HPV16	E2	10	110	IKKHGYTVEV	17964
HPV16	E2	10	211	IRQHLANHPA	17965
HPV16	E2	11	211	IRQHLANHPAA	17966

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	8	164	IRTYFVQF	17967
HPV16	E2	8	307	KHCTLYTA	17968
HPV16	E2	9	307	KHCTLYTAV	17969
HPV16	E2	8	112	KHGYTVEV	17970
HPV16	E2	10	112	KHGYTVEVQF	17971
HPV16	E2	8	52	KHINQVV	17972
HPV16	E2	11	52	KHINHQVVPTL	17973
HPV16	E2	9	327	KHKSATL	17974
HPV16	E2	11	327	KIKSAIVTLTY	17975
HPV16	E2	8	34	KHMRLECA	17976
HPV16	E2	9	34	KHMRLECAI	17977
HPV16	E2	10	34	KHMRLECAIY	17978
HPV16	E2	11	34	KHMRLECAIYY	17979
HPV16	E2	9	306	KKHCTLYTA	17980
HPV16	E2	10	306	KKHCTLYTAV	17981
HPV16	E2	9	111	KKHGYTVEV	17982
HPV16	E2	11	111	KKHGYTVEVQF	17983
HPV16	E2	9	257	LHRDSVDSA	17984
HPV16	E2	11	257	LHRDSVDSAPI	17985
HPV16	E2	8	298	LKCLRYRF	17986
HPV16	E2	8	291	LKGDANTL	17987
HPV16	E2	11	291	LKGDANTLKCL	17988
HPV16	E2	8	26	LRDHIDYW	17989
HPV16	E2	11	26	LRDHIDYWKHM	17990
HPV16	E2	11	301	LRYRFKKHCTL	17991
HPV16	E2	9	129	MHYTNWTHI	17992
HPV16	E2	10	129	MHYTNWTHIY	17993
HPV16	E2	11	129	MHYTNWTHIYI	17994
HPV16	E2	8	36	MRLECAIY	17995
HPV16	E2	9	36	MRLECAIYY	17996
HPV16	E2	11	36	MRLECAIYYKA	17997
HPV16	E2	10	217	NHPAATHTKA	17998
HPV16	E2	11	217	NHPAATHTKAV	17999
HPV16	E2	8	55	NIQVVPTL	18000
HPV16	E2	9	55	NIQVVPTLA	18001
HPV16	E2	10	55	NHQVVPTLAV	18002
HPV16	E2	9	67	NKALQAIEL	18003
HPV16	E2	11	67	NKALQAIELQL	18004
HPV16	E2	8	181	NKVVWEVHA	18005
HPV16	E2	10	353	PKTITVSTGF	18006
HPV16	E2	11	353	PKTITVSTGFM	18007
HPV16	E2	8	213	QHLANIHPA	18008
HPV16	E2	9	213	QHLANHPAA	18009
HPV16	E2	9	342	QRDQFLSQV	18010
HPV16	E2	11	342	QRDQFLSQVKI	18011
HPV16	E2	10	6	QRLNVCCDKI	18012

0205T001 0205T002 0205T003 0205T004 0205T005 0205T006 0205T007 0205T008 0205T009 0205T010 0205T011 0205T012 0205T013 0205T014 0205T015 0205T016 0205T017 0205T018 0205T019 0205T020 0205T021 0205T022 0205T023 0205T024 0205T025 0205T026 0205T027 0205T028 0205T029 0205T030 0205T031 0205T032 0205T033 0205T034 0205T035 0205T036 0205T037 0205T038 0205T039 0205T040 0205T041 0205T042 0205T043 0205T044 0205T045 0205T046 0205T047 0205T048 0205T049 0205T050 0205T051 0205T052 0205T053 0205T054 0205T055 0205T056 0205T057 0205T058

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	11	6	QRLNVCQDKIL	18013
HPV16	E2	8	65	SKNKALQA	18014
HPV16	E2	9	65	SKNKALQAI	18015
HPV16	E2	11	65	SKNKALQAIEL	18016
HPV16	E2	8	179	SKNKVWEV	18017
HPV16	E2	10	179	SKNKVWEVHA	18018
HPV16	E2	9	135	THIYICEEA	18019
HPV16	E2	11	135	THIYICEEASV	18020
HPV16	E2	8	222	THTKAVAL	18021
HPV16	E2	10	17	THYENDSIDL	18022
HPV16	E2	9	254	TKLLHRDSV	18023
HPV16	E2	8	186	VHAGGQVI	18024
HPV16	E2	9	186	VHAGGQVIL	18025
HPV16	E2	8	160	VHEGIRTY	18026
HPV16	E2	9	160	VHEGIRTYF	18027
HPV16	E2	10	160	VHEGIRTYFV	18028
HPV16	E2	10	289	VHLKGDANTL	18029
HPV16	E2	8	326	VKHKSAIV	18030
HPV16	E2	10	326	VKHKSAIVTL	18031
HPV16	E2	9	350	VKIPKTITV	18032
HPV16	E2	8	319	WHWTGHN	18033
HPV16	E2	9	33	WKHMRLECA	18034
HPV16	E2	10	33	WKIIMRLECAI	18035
HPV16	E2	11	33	WKHMRLECAIY	18036
HPV16	E2	8	44	YKAREMGF	18037
HPV16	E2	11	44	YKAREMGFKHII	18038
HPV16	E2	9	303	YRFKKHCTL	18039
HPV16	E2	10	303	YRFKKHCTLY	18040
HPV16	E5	8	57	FRCFIVYI	18041
HPV16	E5	9	57	FRCFIVYII	18042
HPV16	E5	10	57	FRCFIVYIIF	18043
HPV16	E5	11	57	FRCFIVYIIFV	18044
HPV16	E5	8	74	IHTHARFL	18045
HPV16	E5	9	74	IHTHARFLI	18046
HPV16	E5	8	29	IRPLLLSV	18047
HPV16	E5	11	29	IRPLLLSVSTY	18048
HPV16	E6	10	40	CKQQLLRREV	18049
HPV16	E6	11	40	CKQQLLRREY	18050
HPV16	E6	10	71	DKCLKFYSKI	18051
HPV16	E6	9	127	DKKQRFHNI	18052
HPV16	E6	9	14	ERPRKLPL	18053
HPV16	E6	8	132	FHNIRGRW	18054
HPV16	E6	8	54	FRDLICIV	18055
HPV16	E6	8	137	GRWTGRCM	18056
HPV16	E6	9	30	IHDIIIECV	18057
HPV16	E6	10	30	IHDIIIECVY	18058

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E6	10	108	IRCINCKPL	18059
HPV16	E6	10	135	IRGRWTGRGM	18060
HPV16	E6	8	128	KKQRFINI	18061
HPV16	E6	10	74	LKFYSKISEY	18062
HPV16	E6	8	45	LRREYDF	18063
HPV16	E6	9	45	LRREYDFA	18064
HPV16	E6	10	45	LRREYDFAF	18065
HPV16	E6	8	1	MHQKRTAM	18066
HPV16	E6	9	1	MHQKRTAMF	18067
HPV16	E6	8	100	NKPLCDLL	18068
HPV16	E6	9	100	NKPLCDLI	18069
HPV16	E6	11	16	PRKLPQLCTEL	18070
HPV16	E6	10	130	QRFHINIRGRW	18071
HPV16	E6	10	123	QRHLDKKQRF	18072
HPV16	E6	9	124	RHLDKKQRF	18073
HPV16	E6	8	84	RHYCYSLY	18074
HPV16	E6	10	17	RKLPQLCTEL	18075
HPV16	E6	8	46	RREYDFA	18076
HPV16	E6	9	46	RREYDFAF	18077
HPV16	E6	9	78	SKSEYRHY	18078
HPV16	E6	11	78	SKSEYRHYCY	18079
HPV16	E6	9	150	SRTRETQL	18080
HPV16	E6	8	61	YRDGNPYA	18081
HPV16	E6	9	61	YRDGNPYAV	18082
HPV16	E6	8	83	YRIYCYSL	18083
HPV16	E6	9	83	YRIYCYSLY	18084
HPV16	E7	8	50	AHYNIVTF	18085
HPV16	E7	9	59	CKCDSTLRL	18086
HPV16	E7	11	59	CKCDSTLRLCV	18087
HPV16	E7	8	48	DRAHYNIV	18088
HPV16	E7	10	48	DRAHYNIVTF	18089
HPV16	E7	8	76	IRTLDDL	18090
HPV16	E7	9	76	IRTLDDLIM	18091
HPV16	E7	8	8	LHEYMLDL	18092
HPV16	E7	10	65	LRLCVQSTHV	18093
HPV16	E7	8	1	MHGDTPL	18094
HPV16	E7	11	1	MHGDTPLHEY	18095
HPV16	E7	8	72	THVDIRTL	18096
HPV16	E7	11	72	THVDIRTLDEL	18097
HPV16	L1	8	524	AKRKRKL	18098
HPV16	L1	9	55	ARTNIYYHA	18099
HPV16	L1	9	405	CKITLTADV	18100
HPV16	L1	10	405	CKITLTADVIM	18101
HPV16	L1	9	187	CKPPIGEHW	18102
HPV16	L1	9	255	CKYDPYIKM	18103
HPV16	L1	10	255	CKYDPYIKMV	18104

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	10	479	EKFSADLDQF	18105
HPV16	L1	11	386	FKEYLRHGEEY	18106
HPV16	L1	11	99	FRIHLDPNKF	18107
HPV16	L1	8	344	GHNNGICW	18108
HPV16	L1	8	145	GHPLLNL	18109
HPV16	L1	9	196	GKGSPTNV	18110
HPV16	L1	10	196	GKGSPTNVA	18111
HPV16	L1	11	196	GKGSPTNAVAV	18112
HPV16	L1	8	134	GRQPLGV	18113
HPV16	L1	10	134	GRQPLGVGI	18114
HPV16	L1	8	491	GRKFLQA	18115
HPV16	L1	10	491	GRKFLQAGL	18116
HPV16	L1	9	101	IHLDPNKF	18117
HPV16	L1	11	101	IHLDPNKEGF	18118
HPV16	L1	8	417	IISMNSTI	18119
HPV16	L1	9	417	IISMNSTIL	18120
HPV16	L1	8	303	IKSGSTA	18121
HPV16	L1	10	303	IKSGSTANL	18122
HPV16	L1	11	303	IKSGSTANLA	18123
HPV16	L1	9	78	IKKPNNKI	18124
HPV16	L1	10	78	IKKPNNNKIL	18125
HPV16	L1	11	78	IKKPNNNKILV	18126
HPV16	L1	8	261	IKMVSEPY	18127
HPV16	L1	8	79	KKPNNNKI	18128
HPV16	L1	9	79	KKPNNNKIL	18129
HPV16	L1	10	79	KKPNNNKILV	18130
HPV16	L1	8	468	KKYTFWEV	18131
HPV16	L1	10	468	KKYTFWEVNL	18132
HPV16	L1	9	500	LKAKPKFTL	18133
HPV16	L1	9	477	LKEKFSADL	18134
HPV16	L1	9	467	LKKYTFWEV	18135
HPV16	L1	11	467	LKKYTFWEVNL	18136
HPV16	L1	9	390	LRHGEEYDL	18137
HPV16	L1	11	390	LRHGEEYDLQF	18138
HPV16	L1	8	276	LRREQMFV	18139
HPV16	L1	11	276	LRREQMFVRHL	18140
HPV16	L1	10	107	NKFGFDTSF	18141
HPV16	L1	11	107	NKFGFDTSFY	18142
HPV16	L1	8	84	NKILVPKV	18143
HPV16	L1	11	84	NKILVPKVSGL	18144
HPV16	L1	9	150	NKLDDTENA	18145
HPV16	L1	11	150	NKLDDTENASA	18146
HPV16	L1	9	334	NKPYWLQRA	18147
HPV16	L1	9	242	NKSEVPLDI	18148
HPV16	L1	10	288	NRAGAVGENV	18149
HPV16	L1	9	169	NRECISMDY	18150

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	9	462	PKEDPLKKY	18151
HPV16	L1	11	462	PKEDPLKKYTF	18152
HPV16	L1	10	504	PKFTLGKKA	18153
HPV16	L1	8	89	PKVSGLY	18154
HPV16	L1	10	89	PKVSGLYRV	18155
HPV16	L1	11	89	PKVSGLYRVF	18156
HPV16	L1	10	340	QRAQGINNGI	18157
HPV16	L1	8	122	QRLVWACV	18158
HPV16	L1	10	122	QRLVWACVGV	18159
HPV16	L1	8	391	RIIGEEYDL	18160
HPV16	L1	10	391	RHGEEYDLQF	18161
HPV16	L1	11	391	RHGEEYDLQFI	18162
HPV16	L1	9	284	RHLFNRAGA	18163
HPV16	L1	10	284	RHLFNRAGAV	18164
HPV16	L1	9	492	RKFLAQAGL	18165
HPV16	L1	11	492	RKFLAQAGLKA	18166
HPV16	L1	10	277	RREQMFVRHL	18167
HPV16	L1	11	277	RREQMFVRHLF	18168
HPV16	L1	9	45	SKVVSTDEY	18169
HPV16	L1	10	45	SKVVSTDEYV	18170
HPV16	L1	11	45	SKVVSTDEYVA	18171
HPV16	L1	10	66	SRLLAVGHPY	18172
HPV16	L1	11	66	SRLLAVGHPYF	18173
HPV16	L1	8	363	TRSTNMSL	18174
HPV16	L1	10	363	TRSTNMSLCA	18175
HPV16	L1	11	363	TRSTNMSLCAA	18176
HPV16	L1	8	283	VRHLFNRA	18177
HPV16	L1	10	283	VRHLFNRAGA	18178
HPV16	L1	11	283	VRHLFNRAGAV	18179
HPV16	L1	8	61	YHAGTSRL	18180
HPV16	L1	9	61	YHAGTSRLL	18181
HPV16	L1	10	61	YHAGTSRLLA	18182
HPV16	L1	11	61	YHAGTSRLLA-	18183
HPV16	L1	9	21	YHFFQMSL	18184
HPV16	L1	10	21	YHFFQMSLW	18185
HPV16	L1	11	21	YHFFQMSLWL	18186
HPV16	L1	9	381	YKNTNFKEY	18187
HPV16	L1	10	381	YKNTNFKEYL	18188
HPV16	L1	8	177	YKQTQLCL	18189
HPV16	L1	9	177	YKQTQLCLI	18190
HPV16	L1	8	444	YRFVTSQA	18191
HPV16	L1	9	444	YRFVTSQAI	18192
HPV16	L1	10	444	YRFVTSQAIA	18193
HPV16	L1	8	96	YRVFRIHL	18194
HPV16	L2	9	7	AKRTKRASA	18195
HPV16	L2	9	322	AKVIHYYDF	18196

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	11	22	CKQAGTCPPDI	18197
HPV16	L2	10	179	GHFTLSSTI	18198
HPV16	L2	8	317	GKSIGAKV	18199
HPV16	L2	10	317	GKSIGAKVHY	18200
HPV16	L2	11	317	GKSIGAKVHY	18201
HPV16	L2	8	38	GKTIADQI	18202
HPV16	L2	9	38	GKTIADQIL	18203
HPV16	L2	11	38	GKTIADQILQY	18204
HPV16	L2	8	68	GRTGYIPL	18205
HPV16	L2	11	3	IKRSAKRTKRA	18206
HPV16	L2	8	11	KRASATQL	18207
HPV16	L2	9	11	KRASATQLY	18208
HPV16	L2	10	460	KRLPYFFSDV	18209
HPV16	L2	8	457	KRRKRLPY	18210
HPV16	L2	9	457	KRRKRLPYF	18211
HPV16	L2	10	457	KRRKRLPYFF	18212
HPV16	L2	10	4	KRSAKRTKRA	18213
HPV16	L2	8	8	KRTKRASA	18214
HPV16	L2	11	8	KRTKRASATQL	18215
HPV16	L2	8	448	LHPSYYML	18216
HPV16	L2	8	455	LRKRRKRL	18217
HPV16	L2	10	455	LRKRRKRLPY	18218
HPV16	L2	11	455	LRKRRKRLPYF	18219
HPV16	L2	9	312	LRTSGKSI	18220
HPV16	L2	11	312	LRTSGKSIGA	18221
HPV16	L2	8	34	PKVEGKTI	18222
HPV16	L2	9	34	PKVEGKTIA	18223
HPV16	L2	8	459	RKRLPYFF	18224
HPV16	L2	11	459	RKRLPYFFSDV	18225
HPV16	L2	9	456	RKRRKRLPY	18226
HPV16	L2	10	456	RKRRKRLPYF	18227
HPV16	L2	11	456	RKRRKRLPYFF	18228
HPV16	L2	8	458	RRKRLPYF	18229
HPV16	L2	9	458	RRKRLPYFF	18230
HPV16	L2	10	297	RRTGIRYSRI	18231
HPV16	L2	9	353	SHAALPTSI	18232
HPV16	L2	9	304	SRIGNKQTL	18233
HPV16	L2	9	219	SRPVARLGL	18234
HPV16	L2	10	219	SRPVARLGLY	18235
HPV16	L2	8	296	SRRTGIRY	18236
HPV16	L2	11	296	SRRTGIRYSRI	18237
HPV16	L2	9	229	SRTTQQVKV	18238
HPV16	L2	10	229	SRTTQQVKV	18239
HPV16	L2	9	190	THNYEIPM	18240
HPV16	L2	10	247	TKLITYDNPA	18241
HPV16	L2	11	247	TKLITYDNPAY	18242

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	9	10	TKRASATQL	18243
HPV16	L2	10	10	TKRASATQLY	18244
HPV16	L2	10	77	TRPTATDTL	18245
HPV16	L2	11	77	TRPTATDTLA	18246
HPV16	L2	9	314	TRSGKSIGA	18247
HPV16	L2	11	314	TRSGKSIGAKV	18248
HPV16	L2	10	324	VIIYYDFSTI	18249
HPV16	L2	8	235	VKVVDPAF	18250
HPV16	L2	9	235	VKVVDPAFI	18251
HPV16	L2	10	89	VRPPLTVDPV	18252
HPV16	L2	10	269	AHIQCLDCKW	18253
HPV18	E1	8	578	AKDNRWPY	18254
HPV18	E1	9	578	AKDNRWPYL	18255
HPV18	E1	8	298	AKGLSTLL	18256
HPV18	E1	10	298	AKGLSTLLHV	18257
HPV18	E1	8	125	AKRRLFTI	18258
HPV18	E1	8	406	AKYVKDCA	18259
HPV18	E1	10	406	AKYVKDCATM	18260
HPV18	E1	8	276	CKWGVLLI	18261
HPV18	E1	9	276	CKWGVLLILA	18262
HPV18	E1	10	276	CKWGVLLIAL	18263
HPV18	E1	11	276	CKWGVLLIALI	18264
HPV18	E1	8	25	DKKTGDVI	18265
HPV18	E1	8	602	DKNGNPVY	18266
HPV18	E1	10	602	DKNGNPVYEI	18267
HPV18	E1	8	613	DKNWKCF	18268
HPV18	E1	8	236	DKTCTDW	18269
HPV18	E1	9	236	DKTCTDWV	18270
HPV18	E1	11	236	DKTCTDWVTA	18271
HPV18	E1	8	555	DRKHKPLI	18272
HPV18	E1	10	555	DRKHKPLIQL	18273
HPV18	E1	9	101	ERLEVDTEL	18274
HPV18	E1	9	621	ERTWSRLDL	18275
HPV18	E1	10	70	FHAQEVHDA	18276
HPV18	E1	9	218	FKDTYGLSF	18277
HPV18	E1	11	233	FKSDKTCTDW	18278
HPV18	E1	8	258	FKTLIQPF	18279
HPV18	E1	9	258	FKTLIQPFI	18280
HPV18	E1	10	258	FKTLIQPFIL	18281
HPV18	E1	11	258	FKTLIQPFILY	18282
HPV18	E1	8	291	GKSRLTVA	18283
HPV18	E1	11	291	GKSRLTVAKGL	18284
HPV18	E1	9	489	GKSYFGMSF	18285
HPV18	E1	10	489	GKSYFGMSFI	18286
HPV18	E1	8	498	IIFIQGA	18287
HPV18	E1	9	498	IIFIQGA	18288

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	11	498	IHFQGAIVSF	18289
HPV18	E1	9	575	IHPAKDNRW	18290
HPV18	E1	11	575	IHPAKDNRWPP	18291
HPV18	E1	8	433	IRFRCSKI	18292
HPV18	E1	8	557	KIKPLIQL	18293
HPV18	E1	11	417	KHYRRAQKRQM	18294
HPV18	E1	8	123	KKAKRRLF	18295
HPV18	E1	10	123	KKAKRRLFTI	18296
HPV18	E1	11	476	KKNCLVFCGPA	18297
HPV18	E1	9	424	KRQNMMSQW	18298
HPV18	E1	10	424	KRQNMMSQWI	18299
HPV18	E1	8	629	LHHEEEDA	18300
HPV18	E1	8	82	LHVLKRKF	18301
HPV18	E1	9	82	LHVLKRKFA	18302
HPV18	E1	8	305	LHVPETCM	18303
HPV18	E1	9	305	LHVPETCML	18304
HPV18	E1	10	305	LHVPETCMLI	18305
HPV18	E1	8	564	LKCPPIIL	18306
HPV18	E1	11	409	LKDCATMCKHY	18307
HPV18	E1	10	471	LKGTPKKNCL	18308
HPV18	E1	11	471	LKGTPKKNCLV	18309
HPV18	E1	9	400	LKSNQAKY	18310
HPV18	E1	10	400	LKSNQAKYL	18311
HPV18	E1	9	205	LKVNNKQGA	18312
HPV18	E1	10	205	LKVNNKQGAM	18313
HPV18	E1	11	205	LKVNNKQGAML	18314
HPV18	E1	10	648	LRAGQNHRL	18315
HPV18	E1	8	319	LRSSVAAL	18316
HPV18	E1	9	319	LRSSVAALY	18317
HPV18	E1	10	319	LRSSVAALYW	18318
HPV18	E1	11	319	LRSSVAALYWY	18319
HPV18	E1	10	286	LYKCGKSRL	18320
HPV18	E1	8	453	LYQQIEF	18321
HPV18	E1	9	453	LYQQIEFI	18322
HPV18	E1	11	453	LYQQIEFITF	18323
HPV18	E1	10	543	MRNALDGNPI	18324
HPV18	E1	8	209	NKQGAMLA	18325
HPV18	E1	9	209	NKQGAMLAV	18326
HPV18	E1	10	209	NKQGAMLAVF	18327
HPV18	E1	10	581	NRWPYLESRI	18328
HPV18	E1	8	475	PKKNCLVF	18329
HPV18	E1	8	317	PKLRSSVA	18330
HPV18	E1	9	317	PKLRSSVAA	18331
HPV18	E1	10	317	PKLRSSVAAL	18332
HPV18	E1	11	317	PKLRSSVAALY	18333
HPV18	E1	8	111	PRLQEISL	18334

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	9	354	QHGIIDSNF	18335
HPV18	E1	11	354	QHGIIDSNFDL	18336
HPV18	E1	8	122	QKKAKRRL	18337
HPV18	E1	9	122	QKKAKRRLF	18338
HPV18	E1	11	122	QKKAKRRRLFTI	18339
HPV18	E1	10	423	QKRQNMMSQW	18340
HPV18	E1	11	423	QKRQNMMSQWI	18341
HPV18	E1	10	348	QRLTIQHGI	18342
HPV18	E1	9	556	RKHKPLIQL	18343
HPV18	E1	8	420	RRAQKRQM	18344
HPV18	E1	10	420	RRAQKRQNM	18345
HPV18	E1	11	127	RRLFTISDSGY	18346
HPV18	E1	8	513	SHFWLEPL	18347
HPV18	E1	9	438	SKIDEGGDW	18348
HPV18	E1	8	588	SRITVFEF	18349
HPV18	E1	11	588	SRITVFEFPA	18350
HPV18	E1	9	293	SRLTVAKGL	18351
HPV18	E1	9	523	TKVAMLDDA	18352
HPV18	E1	8	75	VHNDQVL	18353
HPV18	E1	10	75	VHNDQVVLHV	18354
HPV18	E1	11	75	VHNDQVVLHVL	18355
HPV18	E1	9	616	WKCFERTW	18356
HPV18	E1	8	446	WRPIVQFL	18357
HPV18	E1	10	446	WRPIVQFLRY	18358
HPV18	E1	8	288	YKCGKSRL	18359
HPV18	E1	10	288	YKCGKSRLTV	18360
HPV18	E1	11	288	YKCGKSRLTVA	18361
HPV18	E1	9	419	YRRAQKRQM	18362
HPV18	E1	11	419	YRRAQKRQNM	18363
HPV18	E1	8	329	YRTGISNI	18364
HPV18	E1	11	329	YRTGISNISEV	18365
HPV18	E2	9	73	AHKAIELQM	18366
HPV18	E2	10	73	AHKAIELQMA	18367
HPV18	E2	11	73	AHKAIELQMAL	18368
HPV18	E2	9	237	AKTYGQTSAA	18369
HPV18	E2	10	237	AKTYGQTSAA	18370
HPV18	E2	9	50	AREHGIQTL	18371
HPV18	E2	10	21	DIYENDSKDI	18372
HPV18	E2	10	311	DIYRDISSTW	18373
HPV18	E2	8	295	DRNSLKCL	18374
HPV18	E2	10	295	DRNSLKCLRY	18375
HPV18	E2	11	52	EHGIQTLNHQV	18376
HPV18	E2	8	256	EKQHCQPV	18377
HPV18	E2	11	256	EKQHCQPVNPL	18378
HPV18	E2	8	328	EKTGILTIV	18379
HPV18	E2	10	328	EKTGILTIVTY	18380

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	9	181	EKYGNTGTW	18381
HPV18	E2	11	181	EKYGNTGTWEV	18382
HPV18	E2	10	10	ERLSCVQDKI	18383
HPV18	E2	11	10	ERLSCVQDKII	18384
HPV18	E2	8	114	FKKGGQTV	18385
HPV18	E2	10	114	FKKGGQTVQV	18386
HPV18	E2	11	114	FKKGGQTVQVY	18387
HPV18	E2	8	176	FKSECEKY	18388
HPV18	E2	8	74	HKAIELQM	18389
HPV18	E2	9	74	HKAIELQMA	18390
HPV18	E2	10	74	HKAIELQMAL	18391
HPV18	E2	11	159	HRGLYYVKEGY	18392
HPV18	E2	10	290	IHLKGRNSL	18393
HPV18	E2	8	40	IRWENAI	18394
HPV18	E2	9	40	IRWENAIFF	18395
HPV18	E2	10	40	IRWENAIFFA	18396
HPV18	E2	11	40	IRWENAIFFAA	18397
HPV18	E2	9	308	KHSDHYRDI	18398
HPV18	E2	9	115	KKGGQTVQV	18399
HPV18	E2	10	115	KKGGQTVQVY	18400
HPV18	E2	11	115	KKGGQTVQVYF	18401
HPV18	E2	8	299	LKCLRYRL	18402
HPV18	E2	8	292	LKGDRNSL	18403
HPV18	E2	11	292	LKGDRNSLKCL	18404
HPV18	E2	8	306	LRKHSDIY	18405
HPV18	E2	11	306	LRKHSDIYRDI	18406
HPV18	E2	8	59	NHQVVPAY	18407
HPV18	E2	10	59	NHQVVPAYNI	18408
HPV18	E2	8	128	NKDNMTY	18409
HPV18	E2	9	128	NKDNMTYV	18410
HPV18	E2	10	128	NKDNMTYVA	18411
HPV18	E2	11	128	NKDNMTYVAW	18412
HPV18	E2	9	4	PKETLSERL	18413
HPV18	E2	9	258	QHCGPVNPL	18414
HPV18	E2	10	258	QHCGPVNPLL	18415
HPV18	E2	11	222	QHTPSPYSSTV	18416
HPV18	E2	9	342	QRTKFLNTV	18417
HPV18	E2	10	342	QRTKFLNTVA	18418
HPV18	E2	11	342	QRTKFLNTVAI	18419
HPV18	E2	10	307	RKHSDIYRDI	18420
HPV18	E2	11	279	RKLCSGNTTPI	18421
HPV18	E2	8	158	SHRGLYYV	18422
HPV18	E2	9	71	SKAHKAIEL	18423
HPV18	E2	11	71	SKAHKAIELQM	18424
HPV18	E2	8	27	SKDIDSQI	18425
HPV18	E2	10	27	SKDIDSQIQY	18426

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E6	8	78	LRIYSDSV	18473
HPV18	E6	9	78	LRHYSDSV	18474
HPV18	E6	8	143	NRARQERL	18475
HPV18	E6	9	61	PIAACHKCI	18476
HPV18	E6	11	61	PHAACHKCIDF	18477
HPV18	E6	10	109	QKPLNPAEKL	18478
HPV18	E6	8	151	QRRRETQV	18479
HPV18	E6	9	119	RHLNEKRRF	18480
HPV18	E6	8	79	RIIYSDSV	18481
HPV18	E6	10	125	RRFINIAGHY	18482
HPV18	E6	9	9	RRPYKLPLD	18483
HPV18	E6	9	73	SRIRELRHY	18484
HPV18	E6	10	8	TRRPYKLPLD	18485
HPV18	E6	10	12	YKLPDLCTEL	18486
HPV18	E6	8	56	YRDSIPHA	18487
HPV18	E6	9	56	YRDSIPHAA	18488
HPV18	E6	11	70	ARIKLVVSSA	18489
HPV18	E7	11	51	ARRAEPQRHTM	18490
HPV18	E7	9	66	CKCEARIKL	18491
HPV18	E7	10	66	CKCEARIKLV	18492
HPV18	E7	11	66	CKCEARIKLVV	18493
HPV18	E7	9	72	IKLVVSSA	18494
HPV18	E7	9	13	LHLEPQNEI	18495
HPV18	E7	11	13	LHLEPQNEIPV	18496
HPV18	E7	8	83	LRAFQQLF	18497
HPV18	E7	9	83	LRAFQQLFL	18498
HPV18	E7	8	1	MHGPKATL	18499
HPV18	E7	11	1	MHGPKATLQDI	18500
HPV18	E7	10	45	NHQILPARRA	18501
HPV18	E7	8	4	PKATLQDI	18502
HPV18	E7	9	4	PKATLQDIV	18503
HPV18	E7	10	4	PKATLQDIVL	18504
HPV18	E7	8	47	QHLPARRA	18505
HPV18	E7	8	57	QRHTMLCM	18506
HPV18	E7	10	52	RRAEPQRHTM	18507
HPV18	E7	11	52	RRAEPQRHTML	18508
HPV18	E7	11	231	AKGTACKSRPL	18509
HPV18	L1	8	559	AKRVRVRA	18510
HPV18	L1	8	318	ARIIFWNRA	18511
HPV18	L1	11	318	ARHFVNRAGTM	18512
HPV18	L1	9	80	ARVNTDDY	18513
HPV18	L1	10	80	ARVNTDDYV	18514
HPV18	L1	9	290	CKYPDYLQM	18515
HPV18	L1	11	290	CKYPDYLQMSA	18516
HPV18	L1	8	504	DKLKFWNV	18517
HPV18	L1	10	504	DKLKFWNVDL	18518

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	8	228	EHWAKGTA	18519
HPV18	L1	10	515	EKFSLDLDQY	18520
HPV18	L1	8	422	FKQYSRHV	18521
HPV18	L1	11	422	FKQYSRHVEEY	18522
HPV18	L1	11	134	FRVQLPDPNKF	18523
HPV18	L1	8	379	GHNGVCW	18524
HPV18	L1	8	180	GHPFYNKL	18525
HPV18	L1	8	43	GHYIILFL	18526
HPV18	L1	11	43	GHYIILFLRNV	18527
HPV18	L1	8	169	GRGQPLGV	18528
HPV18	L1	10	169	GRGQPLGVGL	18529
HPV18	L1	8	527	GRKFLVQA	18530
HPV18	L1	10	527	GRKFLVQAGL	18531
HPV18	L1	10	375	HKAQGHNGV	18532
HPV18	L1	8	453	IHSMNSSI	18533
HPV18	L1	9	453	IHSMNSSIL	18534
HPV18	L1	8	338	IKGTGMPA	18535
HPV18	L1	11	374	LHKAQGHNGV	18536
HPV18	L1	8	29	LHSILVYM	18537
HPV18	L1	9	29	LHSILVYMV	18538
HPV18	L1	11	29	LHSILVYMVHI	18539
HPV18	L1	8	10	LHYHLLPL	18540
HPV18	L1	9	10	LHYHLLPLY	18541
HPV18	L1	9	513	LKEKFSLDL	18542
HPV18	L1	8	506	LKFWNVDL	18543
HPV18	L1	11	251	LKNTVLEDGDM	18544
HPV18	L1	9	50	LRNVNVFPI	18545
HPV18	L1	10	50	LRNVNVFPIF	18546
HPV18	L1	11	50	LRNVNVFPIFL	18547
HPV18	L1	8	311	LRREQLFA	18548
HPV18	L1	11	311	LRREQLFARHF	18549
HPV18	L1	8	499	NKDPYDKL	18550
HPV18	L1	10	499	NKDPYDKLKF	18551
HPV18	L1	10	499	NKDPYDKLKFW	18552
HPV18	L1	10	142	NKFGLPDTSI	18553
HPV18	L1	11	142	NKFGLPDTSIY	18554
HPV18	L1	11	185	NKLDDESSHA	18555
HPV18	L1	9	369	NKPYWLHKA	18556
HPV18	L1	8	119	NKQDIPKV	18557
HPV18	L1	10	119	NKQDIPKVS	18558
HPV18	L1	11	119	NKQDIPKVSAY	18559
HPV18	L1	10	323	NRAGTMGDTV	18560
HPV18	L1	8	124	PKVSAYQY	18561
HPV18	L1	10	124	PKVSAYQYRV	18562
HPV18	L1	11	124	PKVSAYQYRVF	18563
HPV18	L1	9	544	PRKRSAPSA	18564

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	9	24	PRPLPLHSI	18565
HPV18	L1	10	24	PRPLPLHSIL	18566
HPV18	L1	11	24	PRPLPLHSILV	18567
HPV18	L1	8	157	QRLVWACA	18568
HPV18	L1	10	157	QRLVWACAGV	18569
HPV18	L1	10	319	RHFVNRAGTM	18570
HPV18	L1	8	427	RHVEEYDL	18571
HPV18	L1	10	427	RHVEEYDLQF	18572
HPV18	L1	11	427	RHVEEYDLQFI	18573
HPV18	L1	9	528	RKFLVQAGL	18574
HPV18	L1	8	545	RKRSAPSA	18575
HPV18	L1	10	312	RREQLFARHF	18576
HPV18	L1	11	312	RREQLFARHFW	18577
HPV18	L1	8	193	SHAATSNV	18578
HPV18	L1	9	556	SKPAKRVRV	18579
HPV18	L1	11	556	SKPAKRVRVRA	18580
HPV18	L1	9	426	SRHVEEYDL	18581
HPV18	L1	11	426	SRHVEEYDLQF	18582
HPV18	L1	10	101	SRLLTGPNPY	18583
HPV18	L1	11	101	SRLLTGPNPYF	18584
HPV18	L1	9	277	TKCEVPLDI	18585
HPV18	L1	10	420	TKFKQYSRHV	18586
HPV18	L1	8	5	TRVLILHY	18587
HPV18	L1	10	5	TRVLILHYHL	18588
HPV18	L1	11	5	TRVLILHYHLL	18589
HPV18	L1	9	37	VHIIICGHY	18590
HPV18	L1	10	37	VHIIICGHIYI	18591
HPV18	L1	11	37	VHIIICGHYII	18592
HPV18	L1	9	204	VRDNVSDY	18593
HPV18	L1	9	386	WHNQLFVTV	18594
HPV18	L1	10	386	WHNQLFVTVV	18595
HPV18	L1	8	65	WRPSDNTV	18596
HPV18	L1	9	65	WRPSDNTVY	18597
HPV18	L1	10	65	WRPSDNTVYL	18598
HPV18	L1	8	96	YHAGSSRL	18599
HPV18	L1	9	96	YHAGSSRLI	18600
HPV18	L1	11	96	YHAGSSRLTV	18601
HPV18	L1	10	12	YHLLPLYGPI	18602
HPV18	L1	11	12	YHLLPLYGPLY	18603
HPV18	L1	8	22	YHPRPLPL	18604
HPV18	L1	11	22	YHPRPLPLHSI	18605
HPV18	L1	8	212	YKQTQLCI	18606
HPV18	L1	9	212	YKQTQLCIL	18607
HPV18	L1	8	480	YRFVQSV	18608
HPV18	L1	9	480	YRFVQSVAI	18609
HPV18	L1	8	131	YRVFRVQL	18610

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	8	7	ARRKRASV	18611
HPV18	L2	11	7	ARRKRASVTDL	18612
HPV18	L2	9	315	ARVIFFYHDI	18613
HPV18	L2	11	21	CKQSGTCPPDV	18614
HPV18	L2	9	42	DKILQWSSL	18615
HPV18	L2	11	42	DKILQWSSLGI	18616
HPV18	L2	10	372	FKYSPTISSA	18617
HPV18	L2	9	76	GRSNTVVDV	18618
HPV18	L2	8	67	GRTGYIPL	18619
HPV18	L2	9	4	HRAARRKRA	18620
HPV18	L2	11	4	HRAARRKRASV	18621
HPV18	L2	8	430	IHGTHYYL	18622
HPV18	L2	9	430	IHGTHYYLW	18623
HPV18	L2	11	430	IHGTHYYLWPL	18624
HPV18	L2	8	280	IRLHRPAL	18625
HPV18	L2	8	446	KKRKRVPY	18626
HPV18	L2	9	446	KKRKRVPYF	18627
HPV18	L2	10	446	KKRKRVPYFF	18628
HPV18	L2	11	446	KKRKRVPYFFA	18629
HPV18	L2	8	10	KRASVTDL	18630
HPV18	L2	9	10	KRASVTDLY	18631
HPV18	L2	8	447	KRKRVPYF	18632
HPV18	L2	9	447	KRKRVPYFF	18633
HPV18	L2	10	447	KRKRVPYFFA	18634
HPV18	L2	8	449	KRVPYFFA	18635
HPV18	L2	11	449	KRVPYFFADGF	18636
HPV18	L2	9	445	PKKRKRVPY	18637
HPV18	L2	10	445	PKKRKRVPYF	18638
HPV18	L2	11	445	PKKRKRVPYFF	18639
HPV18	L2	8	33	PKVEGTTL	18640
HPV18	L2	9	33	PKVEGTTLA	18641
HPV18	L2	8	224	PRLYSRAY	18642
HPV18	L2	11	224	PRLYSRAYQQV	18643
HPV18	L2	11	118	PRPTFTGTSGF	18644
HPV18	L2	10	267	PRSDVPDSDF	18645
HPV18	L2	11	267	PRSDVPDSDFM	18646
HPV18	L2	9	9	RKRASVTDL	18647
HPV18	L2	10	9	RKRASVTDLY	18648
HPV18	L2	8	448	RKRVPYFF	18649
HPV18	L2	9	448	RKRVPYFFA	18650
HPV18	L2	10	290	RRGTVRESRL	18651
HPV18	L2	10	8	RRKRASVTDL	18652
HPV18	L2	11	8	RRKRASVTDLY	18653
HPV18	L2	8	219	RRVAGPRL	18654
HPV18	L2	9	219	RRVAGPRLY	18655
HPV18	L2	10	3	SHRAARRKRA	18656

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	9	228	SRAYQQVSV	18657
HPV18	L2	10	228	SRAYQQVSA	18658
HPV18	L2	9	297	SRLGQRATM	18659
HPV18	L2	10	297	SRLGQRATMF	18660
HPV18	L2	8	289	SRRGTVRF	18661
HPV18	L2	11	289	SRRGTVRFSRL	18662
HPV18	L2	8	363	SRSSTTSFA	18663
HPV18	L2	9	363	SRSSTTSFAF	18664
HPV18	L2	10	363	SRSSTTSFAFF	18665
HPV18	L2	9	189	THGYEEIPL	18666
HPV18	L2	8	433	THYYLWPL	18667
HPV18	L2	9	433	THYYLWPLY	18668
HPV18	L2	10	433	THYYLWPLY	18669
HPV18	L2	11	433	THYYLWPLYF	18670
HPV18	L2	10	87	TRPPVIEPV	18671
HPV18	L2	9	243	TRPSSLITY	18672
HPV18	L2	9	307	TRSGTQIGA	18673
HPV18	L2	11	307	TRSGTQIGARV	18674
HPV18	L2	10	317	VHFYHDISPI	18675
HPV18	L2	11	317	VHFYHDISPIA	18676
HPV18	L2	10	294	VRESRLGQRA	18677
HPV18	L2	9	218	VRRVAGPRL	18678
HPV18	L2	10	218	VRRVAGPRLY	18679
HPV18	L2	8	320	YHDISPIA	18680
HPV31	E1	9	496	AKIGMLDDA	18681
HPV31	E1	10	379	AKIVKDCGTM	18682
HPV31	E1	10	264	AKNRITIEKL	18683
HPV31	E1	11	264	AKNRITIEKLL	18684
HPV31	E1	8	121	AKRRLFEL	18685
HPV31	E1	10	242	CHLQSLACSW	18686
HPV31	E1	9	607	DKENDGDSF	18687
HPV31	E1	8	575	DKNGNPVY	18688
HPV31	E1	10	575	DKNGNPVYEL	18689
HPV31	E1	8	586	DKNWKSFF	18690
HPV31	E1	9	411	DKVSDGDW	18691
HPV31	E1	8	25	DRQTGDNI	18692
HPV31	E1	10	554	DRWPYLHSRL	18693
HPV31	E1	11	554	DRWPYLHSRLV	18694
HPV31	E1	8	77	EHAQAVQV	18695
HPV31	E1	9	77	EHAQAVQVL	18696
HPV31	E1	11	275	EKLICSTNCM	18697
HPV31	E1	8	271	EKLEKLL	18698
HPV31	E1	10	271	EKLEKLLCI	18699
HPV31	E1	10	396	EKRQMSMGQW	18700
HPV31	E1	11	396	EKRQMSMGQWI	18701
HPV31	E1	11	164	ERENETPTRNI	18702

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	11	426	LRVQQIEFVSF	18749
HPV31	E1	8	209	NKSTCTDW	18750
HPV31	E1	10	209	NKSTCTDWCV	18751
HPV31	E1	11	209	NKSTCTDWCVA	18752
HPV31	E1	8	266	NRITIEKL	18753
HPV31	E1	9	266	NRITIEKLL	18754
HPV31	E1	8	448	PKKNCILI	18755
HPV31	E1	11	448	PKKNCILHGA	18756
HPV31	E1	8	290	PKLRSTAA	18757
HPV31	E1	9	290	PKLRSTAAA	18758
HPV31	E1	10	290	PKLRSTAAAL	18759
HPV31	E1	11	290	PKLRSTAAALY	18760
HPV31	E1	8	107	PRLKAICI	18761
HPV31	E1	9	327	QHSFNDTTF	18762
HPV31	E1	11	327	QHSFNDTTFDL	18763
HPV31	E1	11	390	RIIYKRAEKRQM	18764
HPV31	E1	8	87	RKYVGSPL	18765
HPV31	E1	11	87	RKYVGSPLSDI	18766
HPV31	E1	11	123	RRLFELPDSGY	18767
HPV31	E1	8	486	SHFWLQPL	18768
HPV31	E1	9	486	SHFWLQPLA	18769
HPV31	E1	11	486	SHFWLQPLADA	18770
HPV31	E1	10	484	SKSHFWLQPL	18771
HPV31	E1	11	484	SKSHFWLQPLA	18772
HPV31	E1	8	118	SKTAKRRL	18773
HPV31	E1	9	118	SKTAKRRLF	18774
HPV31	E1	11	118	SKTAKRRLFEL	18775
HPV31	E1	8	561	SRLVVFTF	18776
HPV31	E1	9	594	SRTWCRNL	18777
HPV31	E1	8	171	TRNIIQVL	18778
HPV31	E1	11	382	VKDCGTMCRHY	18779
HPV31	E1	9	423	VKFLRYQQI	18780
HPV31	E1	11	423	VKFLRYQQIEF	18781
HPV31	E1	9	529	VKHKALMQL	18782
HPV31	E1	10	259	VRFKCAKNRI	18783
HPV31	E1	8	509	WHYIDNYL	18784
HPV31	E1	11	509	WHYIDNYLRNA	18785
HPV31	E1	9	589	WKSFFSRTW	18786
HPV31	E1	8	419	WRDIVKFL	18787
HPV31	E1	10	419	WRDIVKFLRY	18788
HPV31	E1	9	392	YKRAEKRQM	18789
HPV31	E1	11	392	YKRAEKRQMSM	18790
HPV31	E1	8	302	YRTGMSNI	18791
HPV31	E1	11	302	YRTGMSNISDV	18792
HPV31	E2	9	67	AKALQAIEL	18793
HPV31	E2	11	67	AKALQAIELQM	18794

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	10	175	AKKYGTKKW	18795
HPV31	E2	9	46	AREMGIHSI	18796
HPV31	E2	9	28	DHIDYWKHI	18797
HPV31	E2	11	28	DHIDYWKHRL	18798
HPV31	E2	11	251	EHRNTHPNKL	18799
HPV31	E2	10	17	EHYENDSKRL	18800
HPV31	E2	9	163	GHITYFVNF	18801
HPV31	E2	8	333	GKHNAIV	18802
HPV31	E2	10	333	GKHNAIVTL	18803
HPV31	E2	8	181	GKKWEVHA	18804
HPV31	E2	8	335	HKNAIVTL	18805
HPV31	E2	10	335	IKNAIVTLTY	18806
HPV31	E2	11	335	IKNAIVTLTYI	18807
HPV31	E2	10	252	HRNTHPNKL	18808
HPV31	E2	11	252	HRNTHPNKLL	18809
HPV31	E2	9	296	IHLKGDANI	18810
HPV31	E2	10	296	IHLKGDANIL	18811
HPV31	E2	8	51	IHSINHQV	18812
HPV31	E2	9	51	IHSINHQVV	18813
HPV31	E2	11	51	IHSINIQVPA	18814
HPV31	E2	8	36	IRLECVLM	18815
HPV31	E2	9	36	IRLECVLMY	18816
HPV31	E2	11	36	IRLECVLMYKA	18817
HPV31	E2	8	112	KHGYTVEV	18818
HPV31	E2	10	112	KHGYTVEVQF	18819
HPV31	E2	8	34	KHIRLECV	18820
HPV31	E2	9	34	KIIRLECVL	18821
HPV31	E2	10	34	KIIRLECVLM	18822
HPV31	E2	11	34	KHIRLECVLMY	18823
HPV31	E2	9	334	KHKNAIVTL	18824
HPV31	E2	11	334	KHKNAIVTLTY	18825
HPV31	E2	9	111	KKHGYTVEV	18826
HPV31	E2	11	111	KKHGYTVEVQF	18827
HPV31	E2	11	182	KKWEVHAGGQV	18828
HPV31	E2	9	176	KKYGTGKKW	18829
HPV31	E2	11	176	KKYGTGKKWEV	18830
HPV31	E2	9	24	KRLCDHIDY	18831
HPV31	E2	10	24	KRLCDHIDYW	18832
HPV31	E2	8	305	LKCLRYRL	18833
HPV31	E2	11	305	LKCLRYRLSKY	18834
HPV31	E2	8	298	LKGDANIL	18835
HPV31	E2	11	298	LKGDANILKCL	18836
HPV31	E2	8	110	LKKHGYTV	18837
HPV31	E2	10	110	LKKHGYTVEV	18838
HPV31	E2	9	262	LRGDSVDSV	18839
HPV31	E2	8	308	LYRLSKY	18840

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	11	308	LYRLSKYQL	18841
HPV31	E2	8	129	MHYTNWKF	18842
HPV31	E2	9	129	MHYTNWKF	18843
HPV31	E2	10	129	MHYTNWKF	18844
HPV31	E2	11	129	MHYTNWKFYL	18845
HPV31	E2	8	55	NHQVVPAL	18846
HPV31	E2	10	55	NHQVVPALSV	18847
HPV31	E2	9	259	NKLLRGDSV	18848
HPV31	E2	9	349	QRDDFLNTV	18849
HPV31	E2	11	349	QRDDFLNTVKI	18850
HPV31	E2	10	6	QRLNVCQDKI	18851
HPV31	E2	11	6	QRLNVCQDKIL	18852
HPV31	E2	8	65	SKAKALQA	18853
HPV31	E2	9	65	SKAKALQAI	18854
HPV31	E2	11	65	SKAKALQAIEL	18855
HPV31	E2	8	23	SKRLCDHI	18856
HPV31	E2	10	23	SKRLCDHIDY	18857
HPV31	E2	11	23	SKRLCDHIDYW	18858
HPV31	E2	10	313	SKYKQLYEQV	18859
HPV31	E2	8	255	THHPNKLL	18860
HPV31	E2	8	284	TRAVSCPA	18861
HPV31	E2	8	186	VHAGGQVI	18862
HPV31	E2	9	186	VHAGGQVIV	18863
HPV31	E2	10	186	VHAGGQVIVF	18864
HPV31	E2	8	160	VHEGHIITY	18865
HPV31	E2	9	160	VHEGHIITYF	18866
HPV31	E2	10	160	VHEGHIITYFV	18867
HPV31	E2	10	125	VHNTMHTYTNW	18868
HPV31	E2	9	357	VKIPNTVSV	18869
HPV31	E2	8	134	WKFIYLCI	18870
HPV31	E2	9	33	WKHIRLECV	18871
HPV31	E2	10	33	WKHIRLECVL	18872
HPV31	E2	11	33	WKHIRLECVLM	18873
HPV31	E2	8	44	YKAREMGI	18874
HPV31	E2	11	44	YKAREMGHISI	18875
HPV31	E2	8	87	YKNEDWTM	18876
HPV31	E2	8	315	YKQLYEQV	18877
HPV31	E2	9	310	YRLSKYKQL	18878
HPV31	E2	10	310	YRLSKYKQLY	18879
HPV31	E5	8	74	IHTHASFL	18880
HPV31	E5	8	29	IRPLVLSV	18881
HPV31	E5	10	29	IRPLVLSVSV	18882
HPV31	E5	11	29	IRPLVLSVSVY	18883
HPV31	E5	8	57	LRCFCIYV	18884
HPV31	E5	9	57	LRCFCIYVV	18885
HPV31	E5	10	57	LRCFCIYVVF	18886

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Seq. Id. No.

Type Protein No. of Amino Acids Position Sequence

HPV31	E5	11	57	LRCFCIYVVF	18887
HPV31	E6	10	33	CKGQLTETEV	18888
HPV31	E6	11	33	CKGQLTETEV	18889
HPV31	E6	9	120	DKKKRPHNI	18890
HPV31	E6	8	89	EKLTKNGI	18891
HPV31	E6	11	89	EKLTKNGICDL	18892
HPV31	E6	9	7	ERPRKLHEL	18893
HPV31	E6	8	125	FINIGRW	18894
HPV31	E6	11	2	FKNPAERPKL	18895
HPV31	E6	8	76	FRWYRYSV	18896
HPV31	E6	9	76	FRWYRYSV	18897
HPV31	E6	8	130	GRWTGRCI	18898
HPV31	E6	9	130	GRWTGRCIA	18899
HPV31	E6	11	130	GRWTGRCIACW	18900
HPV31	E6	10	101	IRCTCQRPL	18901
HPV31	E6	8	121	KKKRPHNI	18902
HPV31	E6	11	122	KKRFHINIGRW	18903
HPV31	E6	10	123	KRFHINIGRW	18904
HPV31	E6	8	12	LHELSSAL	18905
HPV31	E6	10	12	LHELSSALEI	18906
HPV31	E6	10	67	LRFYSKVSEF	18907
HPV31	E6	8	93	NGICDLL	18908
HPV31	E6	9	93	NGICDLL	18909
HPV31	E6	9	59	PHGVCTKCL	18910
HPV31	E6	11	59	PHGVCTKCLRF	18911
HPV31	E6	10	9	PRKLHELSSA	18912
HPV31	E6	11	9	PRKLHELSSAL	18913
HPV31	E6	10	116	QRHLDKKKRF	18914
HPV31	E6	9	117	RHLDKKKRF	18915
HPV31	E6	9	10	RKLHELSSA	18916
HPV31	E6	10	10	RKLHELSSAL	18917
HPV31	E6	9	141	RRPRTETQV	18918
HPV31	E6	8	71	SKVSEFRW	18919
HPV31	E6	9	71	SKVSEFRWY	18920
HPV31	E6	11	71	SKVSEFRWYRY	18921
HPV31	E6	10	64	TKCLRFYSKV	18922
HPV31	E6	10	140	WRRPRTETQV	18923
HPV31	E6	9	54	YRDDTPHGV	18924
HPV31	E6	10	79	YRYSVYGTTL	18925
HPV31	E6	9	61	CKSTLRCLV	18926
HPV31	E7	8	76	IRILQELL	18927
HPV31	E7	9	76	IRILQELLM	18928
HPV31	E7	10	65	LRLCVQSTQV	18929
HPV31	E7	8	1	MRGETPTL	18930
HPV31	E7	11	1	MRGETPTLQDY	18931
HPV31	L1	10	40	ARLLTVGHIPY	18932

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	11	40	ARLLTVGHPVY	18933
HPV31	L1	9	380	CKITLSADI	18934
HPV31	L1	10	380	CKITLSADIM	18935
HPV31	L1	9	162	CKPPIGEHW	18936
HPV31	L1	9	230	CKYPDYLMK	18937
HPV31	L1	10	230	CKYPDYLMKV	18938
HPV31	L1	11	230	CKYPDYLMKVA	18939
HPV31	L1	10	454	EKFSADLDQF	18940
HPV31	L1	8	481	FKAGKRS	18941
HPV31	L1	11	481	FKAGKRSAPSA	18942
HPV31	L1	9	442	FKDYVFWFV	18943
HPV31	L1	11	442	FKDYVFWFVNL	18944
HPV31	L1	11	361	FKEYLRHGEF	18945
HPV31	L1	9	356	FKSSNFKEY	18946
HPV31	L1	10	356	FKSSNFKEYL	18947
HPV31	L1	11	74	FRVRLDPNKF	18948
HPV31	L1	8	319	GHNNGICW	18949
HPV31	L1	8	120	GHPLLNF	18950
HPV31	L1	10	171	GKGSPCSNA	18951
HPV31	L1	11	171	GKGSPCSNNAI	18952
HPV31	L1	8	484	GKRSAPSA	18953
HPV31	L1	8	109	GRGQPLGV	18954
HPV31	L1	10	109	GRGQPLGVGI	18955
HPV31	L1	8	466	GRKFLQA	18956
HPV31	L1	10	466	GRKFLQAGY	18957
HPV31	L1	8	392	IHSMNP	18958
HPV31	L1	9	392	IHSMNPAIL	18959
HPV31	L1	8	278	IKGSGSTA	18960
HPV31	L1	10	278	IKGSGSTATL	18961
HPV31	L1	11	278	IKGSGSTATLA	18962
HPV31	L1	8	59	KKIVVPKV	18963
HPV31	L1	11	59	KKIVVPKVSGL	18964
HPV31	L1	9	452	LKEKFSADL	18965
HPV31	L1	8	236	LKMVAEPY	18966
HPV31	L1	11	191	LKNSVIQDGM	18967
HPV31	L1	9	365	LRHGEEDL	18968
HPV31	L1	11	365	LRHGEEDLQF	18969
HPV31	L1	8	251	LRREQMFV	18970
HPV31	L1	11	251	LRREQMFVRIIF	18971
HPV31	L1	10	82	NKFGFDTSF	18972
HPV31	L1	11	82	NKFGFDTSFY	18973
HPV31	L1	9	309	NKPYWMQRA	18974
HPV31	L1	144	144	NRECISMDY	18975
HPV31	L1	10	263	NRSGTVGESV	18976
HPV31	L1	9	437	PKEDPFKDY	18977
HPV31	L1	10	437	PKEDPFKDYV	18978

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	11	437	PKEDPFKYVF	18979
HPV31	L1	10	479	PKFKAGKRS	18980
HPV31	L1	9	58	PKKIVVPKV	18981
HPV31	L1	9	53	PKSDNPKKI	18982
HPV31	L1	10	53	PKSDNPKKIV	18983
HPV31	L1	11	53	PKSDNPKKIVV	18984
HPV31	L1	8	64	PKVSGLOQY	18985
HPV31	L1	10	64	PKVSGLOQYRV	18986
HPV31	L1	11	64	PKVSGLOQYRVF	18987
HPV31	L1	8	435	QKPKEDPF	18988
HPV31	L1	11	435	QKPKEDPFKY	18989
HPV31	L1	10	315	QRAQGHNGI	18990
HPV31	L1	8	97	QRLVWACV	18991
HPV31	L1	10	97	QRLVWACVGL	18992
HPV31	L1	10	259	RHFFNRSQTV	18993
HPV31	L1	8	366	RHGEEDL	18994
HPV31	L1	10	366	RHGEEDLQF	18995
HPV31	L1	11	366	RHGEEDLQFI	18996
HPV31	L1	9	467	RKFLQAGY	18997
HPV31	L1	11	467	RKFLQAGYRA	18998
HPV31	L1	10	252	RREQMFVRHF	18999
HPV31	L1	11	252	RREQMFVRHFF	19000
HPV31	L1	9	19	SKVSTDEY	19001
HPV31	L1	10	19	SKVSTDEYV	19002
HPV31	L1	9	217	TKSNVPLDI	19003
HPV31	L1	8	338	TRSTNMSV	19004
HPV31	L1	10	338	TRSTNMSVCA	19005
HPV31	L1	11	338	TRSTNMSVCAA	19006
HPV31	L1	9	29	TRTNIVYHA	19007
HPV31	L1	11	258	VRHFNRSQTV	19008
HPV31	L1	9	76	VRLDPNKF	19009
HPV31	L1	11	76	VRLDPNKFQF	19010
HPV31	L1	8	4	WRPSEATV	19011
HPV31	L1	9	4	WRPSEATVY	19012
HPV31	L1	10	4	WRPSEATVYL	19013
HPV31	L1	8	35	YHAGSARL	19014
HPV31	L1	9	35	YHAGSARLL	19015
HPV31	L1	11	35	YHAGSARLLTV	19016
HPV31	L1	8	152	YKQQLCL	19017
HPV31	L1	9	152	YKQQLCLL	19018
HPV31	L1	9	475	YRARPQFA	19019
HPV31	L1	8	419	YRFVTSQA	19020
HPV31	L1	9	419	YRFVTSQAI	19021
HPV31	L1	8	71	YRFRVRL	19022
HPV31	L2	9	218	ARLGYSKA	19023
HPV31	L2	9	315	ARVHYDDI	19024

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	11	22	CKAAGTCPSDV	19025
HPV31	L2	8	412	EHAPTQVF	19026
HPV31	L2	10	412	EHAPTQVFPF	19027
HPV31	L2	9	37	EHTTIADQI	19028
HPV31	L2	10	37	EHTTIADQIL	19029
HPV31	L2	10	174	GHLLSSSSI	19030
HPV31	L2	8	68	GRTGYVPL	19031
HPV31	L2	10	89	IRPPVSIDPV	19032
HPV31	L2	8	11	KRASATQL	19033
HPV31	L2	9	11	KRASATQLY	19034
HPV31	L2	9	449	KRRKRVSYS	19035
HPV31	L2	10	449	KRRKRVSYSF	19036
HPV31	L2	11	449	KRRKRVSYSFF	19037
HPV31	L2	10	4	KRSTKRTKRA	19038
HPV31	L2	8	8	KRTKRASA	19039
HPV31	L2	11	8	KRTKRASATQL	19040
HPV31	L2	10	453	KRVSYFFTDV	19041
HPV31	L2	8	441	LHPSYYML	19042
HPV31	L2	8	448	LKRRRKRV	19043
HPV31	L2	10	448	LKRRRKRVSY	19044
HPV31	L2	11	448	LKRRRKRVSYF	19045
HPV31	L2	9	305	LRTSGATI	19046
HPV31	L2	11	305	LRTSGATIGA	19047
HPV31	L2	8	46	LRYSMGV	19048
HPV31	L2	9	46	LRYSMGVF	19049
HPV31	L2	10	46	LRYSMGVFF	19050
HPV31	L2	11	301	NKQTLRTRSGA	19051
HPV31	L2	9	124	PIPPITSGF	19052
HPV31	L2	11	124	PIPPITSGFDI	19053
HPV31	L2	8	34	PKIEHTI	19054
HPV31	L2	9	34	PKIEHTTIA	19055
HPV31	L2	11	241	PKQLITYENPA	19056
HPV31	L2	8	452	RKRVSYFF	19057
HPV31	L2	11	452	RKRVSYFFTDV	19058
HPV31	L2	8	451	RKRVSYF	19059
HPV31	L2	9	451	RKRVSYFF	19060
HPV31	L2	10	290	RRNTVRSRL	19061
HPV31	L2	8	215	RRPARLGL	19062
HPV31	L2	9	215	RRPARLGLY	19063
HPV31	L2	8	450	RRKRVSYS	19064
HPV31	L2	9	450	RRKRVSYSF	19065
HPV31	L2	10	450	RRKRVSYSFF	19066
HPV31	L2	10	267	SIINIAPDPDF	19067
HPV31	L2	11	267	SIINIAPDPDFL	19068
HPV31	L2	9	224	SKATQQVKV	19069
HPV31	L2	10	224	SKATQQVKVI	19070

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	11	3	SKRSTKRTKRA	19071
HPV31	L2	9	297	SRLGNKQTL	19072
HPV31	L2	8	289	SRRTVRY	19073
HPV31	L2	11	289	SRNTVRYSL	19074
HPV31	L2	9	368	THNVSPSTA	19075
HPV31	L2	10	368	THNVSPSTAV	19076
HPV31	L2	9	185	THNYEEIPM	19077
HPV31	L2	9	10	TKRASATQL	19078
HPV31	L2	10	10	TKRASATQLY	19079
HPV31	L2	9	7	TKRTKRASA	19080
HPV31	L2	9	77	TRPSTVSEA	19081
HPV31	L2	11	77	TRPSTVSEASI	19082
HPV31	L2	9	307	TRSGATIGA	19083
HPV31	L2	11	307	TRSGATIGARV	19084
HPV31	L2	10	317	VHYYDDISSI	19085
HPV31	L2	8	230	VKVIDPTF	19086
HPV31	L2	9	230	VKVIDPTFL	19087
HPV31	L2	11	230	VKVIDPTFLSA	19088
HPV31	L2	9	214	VRRPARLGL	19089
HPV31	L2	10	214	VRRPARLGLY	19090
HPV33	E1	9	509	AKIGMIDDV	19091
HPV33	E1	9	392	AKIVKDCGI	19092
HPV33	E1	10	392	AKIVKDCGIM	19093
HPV33	E1	8	284	AKLMSNLL	19094
HPV33	E1	10	284	AKLMSNLLSI	19095
HPV33	E1	9	620	DKENHGGNI	19096
HPV33	E1	8	222	DKTCTDW	19097
HPV33	E1	10	222	DKTCTDWCI	19098
HPV33	E1	11	102	DRAANPCRTSI	19099
HPV33	E1	8	263	DRGIHLL	19100
HPV33	E1	9	263	DRGIHLLI	19101
HPV33	E1	10	263	DRGIHLLLI	19102
HPV33	E1	10	334	DRTLVLQHSF	19103
HPV33	E1	10	409	EKRKMSIGQW	19104
HPV33	E1	11	409	EKRKMSIGQWI	19105
HPV33	E1	9	424	EKTNDGGNW	19106
HPV33	E1	8	25	ERTGDNI	19107
HPV33	E1	9	204	FKEAYGISF	19108
HPV33	E1	10	204	FKEAYGISFM	19109
HPV33	E1	8	453	FKKFLKGI	19110
HPV33	E1	11	219	FKSDKTSCTDW	19111
HPV33	E1	8	274	FRCSKNRL	19112
HPV33	E1	10	274	FRCSKNRLTV	19113
HPV33	E1	11	274	FRCSKNRLTVA	19114
HPV33	E1	8	315	FRTAMSN	19115
HPV33	E1	11	315	FRTAMSNISDV	19116

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	9	475	GKSYFGMSL	19117
HPV33	E1	10	475	GKSYFGMSLI	19118
HPV33	E1	10	248	IKQHSLYTHL	19119
HPV33	E1	10	272	IRFRCSKNRL	19120
HPV33	E1	8	543	KHRALVQL	19121
HPV33	E1	8	406	KKAERKRM	19122
HPV33	E1	10	406	KKAERKMSI	19123
HPV33	E1	11	462	KKSCMLICGPA	19124
HPV33	E1	11	86	KRKFAACSQA	19125
HPV33	E1	9	410	KRKMSIGQW	19126
HPV33	E1	10	410	KRKMSIGQWI	19127
HPV33	E1	8	572	LHSRLTVF	19128
HPV33	E1	10	572	LHSRLTVFEF	19129
HPV33	E1	8	191	LHSSNTKA	19130
HPV33	E1	10	191	LHSSNTKANI	19131
HPV33	E1	11	191	LHSSNTKANIL	19132
HPV33	E1	8	550	LKCPPLL	19133
HPV33	E1	9	487	LKGCVISCV	19134
HPV33	E1	10	457	LKGIPKKSCM	19135
HPV33	E1	11	457	LKGIPKKSCML	19136
HPV33	E1	9	386	LKSNSQAKI	19137
HPV33	E1	10	386	LKSNSQAKIV	19138
HPV33	E1	10	244	LKVLIKQHS	19139
HPV33	E1	11	244	LKVLIKQHSLY	19140
HPV33	E1	8	305	LRSTCAL	19141
HPV33	E1	9	305	LRSTCALY	19142
HPV33	E1	10	305	LRSTCALYW	19143
HPV33	E1	11	305	LRSTCALYWF	19144
HPV33	E1	8	439	LRYNIEF	19145
HPV33	E1	10	439	LRYNIEFTA	19146
HPV33	E1	11	439	LRYNIEFTAF	19147
HPV33	E1	10	529	MRNALDGNEL	19148
HPV33	E1	9	623	NHGGNISTF	19149
HPV33	E1	11	115	NKECTYRKRKI	19150
HPV33	E1	8	113	NKNKECTY	19151
HPV33	E1	8	279	NRLTVAKL	19152
HPV33	E1	9	279	NRLTVAKLM	19153
HPV33	E1	8	461	PKKSCMLI	19154
HPV33	E1	9	303	PKLRSQTCA	19155
HPV33	E1	10	303	PKLRSQTCAL	19156
HPV33	E1	11	303	PKLRSQTCALY	19157
HPV33	E1	8	340	QHSFNDNI	19158
HPV33	E1	9	340	QHSFNDNIF	19159
HPV33	E1	11	340	QHSFNDNIFDL	19160
HPV33	E1	8	250	QHSLYTHL	19161
HPV33	E1	11	250	QHSLYTHLQCL	19162

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	11	403	RHYKKAERKRM	19163
HPV33	E1	10	87	RKFAACQSA	19164
HPV33	E1	11	87	RKFAACQSA	19165
HPV33	E1	11	123	RKIDEEDSGY	19166
HPV33	E1	8	411	RKMSIGQW	19167
HPV33	E1	9	411	RKMSIGQWI	19168
HPV33	E1	8	121	RKRKIDEL	19169
HPV33	E1	8	499	SHFWLQPL	19170
HPV33	E1	11	499	SHFWLQPLSDA	19171
HPV33	E1	8	277	SKNRLTV	19172
HPV33	E1	10	277	SKNRLTVAKL	19173
HPV33	E1	11	277	SKNRLTVAKLM	19174
HPV33	E1	10	497	SKSHFWLQPL	19175
HPV33	E1	8	574	SRLTVFEF	19176
HPV33	E1	9	607	SRTWCKLDL	19177
HPV33	E1	10	607	SRTWCKLDLI	19178
HPV33	E1	10	567	SRWPYLHSL	19179
HPV33	E1	9	196	TKANILYKF	19180
HPV33	E1	11	395	VKDCGIMCRHY	19181
HPV33	E1	9	542	VKRALVQL	19182
HPV33	E1	9	602	WKSFFSRTW	19183
HPV33	E1	8	432	WRPIVQLL	19184
HPV33	E1	10	432	WRPIVQLLRY	19185
HPV33	E1	9	202	YKFKEAYGI	19186
HPV33	E1	11	202	YKFKEAYGISF	19187
HPV33	E1	9	405	YKKAERKRM	19188
HPV33	E1	11	405	YKKAERKRMMSI	19189
HPV33	E1	9	120	YRKRKIDEL	19190
HPV33	E1	9	46	AKQMGFSLH	19191
HPV33	E2	8	176	AKYSKTQM	19192
HPV33	E2	9	176	AKYSKTQMW	19193
HPV33	E2	11	176	AKYSKTQMWEV	19194
HPV33	E2	10	6	ARLNAVQEKI	19195
HPV33	E2	11	6	ARLNAVQEKIL	19196
HPV33	E2	8	55	CHQVVPSL	19197
HPV33	E2	9	55	CHQVVPSLL	19198
HPV33	E2	10	55	CHQVVPSLLA	19199
HPV33	E2	8	124	DKKNTMDY	19200
HPV33	E2	11	124	DKKNTMDYTNW	19201
HPV33	E2	9	22	DKTDLPSQI	19202
HPV33	E2	8	31	EHWKILRM	19203
HPV33	E2	11	31	EHWKILRMECA	19204
HPV33	E2	9	13	EKILDLYEA	19205
HPV33	E2	8	164	EKVYFKYF	19206
HPV33	E2	8	171	FKEDAAY	19207
HPV33	E2	8	110	FKQGETV	19208

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	10	110	FKKQGETVTV	19209
HPV33	E2	8	168	FKYFKEDA	19210
HPV33	E2	9	168	FKYFKEDAA	19211
HPV33	E2	11	168	FKYFKEDAARY	19212
HPV33	E2	8	150	GKVDYIGM	19213
HPV33	E2	9	150	GKVDYIGMY	19214
HPV33	E2	10	150	GKVDYIGMY	19215
HPV33	E2	11	150	GKVDYIGMYI	19216
HPV33	E2	8	160	IHNCEKV	19217
HPV33	E2	9	160	IHNCEKVYF	19218
HPV33	E2	11	160	IHNCEKVYFKY	19219
HPV33	E2	8	36	IRMECALL	19220
HPV33	E2	9	36	IRMECALLY	19221
HPV33	E2	11	36	IRMECALLYTA	19222
HPV33	E2	10	125	KKNTMDYTNW	19223
HPV33	E2	9	111	KKQGETVTV	19224
HPV33	E2	11	111	KKQGETVTVQY	19225
HPV33	E2	8	286	LKCLRYRL	19226
HPV33	E2	11	286	LKCLRYRLKPY	19227
HPV33	E2	8	279	LKGESNL	19228
HPV33	E2	11	279	LKGESNLKCL	19229
HPV33	E2	8	293	LKPYKELY	19230
HPV33	E2	11	293	LKPYKELYSSM	19231
HPV33	E2	8	289	LYRLKPY	19232
HPV33	E2	11	289	LYRLKPYKEL	19233
HPV33	E2	8	313	NKNSKNGI	19234
HPV33	E2	9	313	NKNSKNGIV	19235
HPV33	E2	11	313	NKNSKNGIVTV	19236
HPV33	E2	11	263	NKQRTVCSSNV	19237
HPV33	E2	8	218	NRPPQAAA	19238
HPV33	E2	11	107	PKCFKKQGETV	19239
HPV33	E2	9	265	QRTVCSSNV	19240
HPV33	E2	10	265	QRTVCSSNVA	19241
HPV33	E2	10	228	RRPADTTDTA	19242
HPV33	E2	11	227	RRRPADTTDTA	19243
HPV33	E2	8	52	SHLCHQVV	19244
HPV33	E2	11	52	SHLCIQVVPSL	19245
HPV33	E2	8	316	SKNGIVTV	19246
HPV33	E2	10	316	SKNGIVTVTF	19247
HPV33	E2	11	316	SKNGIVTVTFV	19248
HPV33	E2	10	83	SKSQYSTSQW	19249
HPV33	E2	8	65	SKTKAFQV	19250
HPV33	E2	9	65	SKTKAFQVI	19251
HPV33	E2	11	65	SKTKAFQVIEL	19252
HPV33	E2	8	179	SKTQMWEV	19253
HPV33	E2	10	179	SKTQMWEVHV	19254

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B27 Supermodif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	9	67	TKAFQVIEL	19255
HPV33	E2	11	67	TKAFQVIELQM	19256
HPV33	E2	9	241	TKLFCADPA	19257
HPV33	E2	10	241	TKLFCADPAL	19258
HPV33	E2	10	277	VILKGESNSL	19259
HPV33	E2	8	186	VHVGQVIV	19260
HPV33	E2	9	186	VHVGQVIV	19261
HPV33	E2	9	338	VKIPPTVQI	19262
HPV33	E2	9	33	WKLIRMECA	19263
HPV33	E2	10	33	WKLIRMECAL	19264
HPV33	E2	11	33	WKLIRMECALL	19265
HPV33	E2	8	296	YKELYSSM	19266
HPV33	E2	9	291	YRLKPYKEL	19267
HPV33	E2	10	291	YRLKPYKELY	19268
HPV33	E5	8	47	LKIFFCYL	19269
HPV33	E5	9	47	LKIFFCYLL	19270
HPV33	E5	10	47	LKIFFCYLLF	19271
HPV33	E5	11	47	LKIFFCYLLFL	19272
HPV33	E5	8	19	LRPLLSI	19273
HPV33	E5	11	19	LRPLLSISTY	19274
HPV33	E6	10	33	CKKPLQRSEV	19275
HPV33	E6	11	33	CKKPLQRSEVY	19276
HPV33	E6	8	63	CKLCLRFL	19277
HPV33	E6	11	63	CKLCLRFLSKI	19278
HPV33	E6	8	114	EKKRHVDL	19279
HPV33	E6	9	7	EKPRTLHDL	19280
HPV33	E6	8	125	FINISGRW	19281
HPV33	E6	9	125	FNHISGRWA	19282
HPV33	E6	8	130	GRWAGRCA	19283
HPV33	E6	9	130	GRWAGRCAA	19284
HPV33	E6	11	130	GRWAGRCAACW	19285
HPV33	E6	9	23	IHNIELQCV	19286
HPV33	E6	10	101	IRCHICQRPL	19287
HPV33	E6	8	93	KKPLNEIL	19288
HPV33	E6	9	93	KKPLNEILI	19289
HPV33	E6	9	34	KKPLQRSEV	19290
HPV33	E6	10	34	KKPLQRSEVY	19291
HPV33	E6	11	115	KKRIIVDLNKR	19292
HPV33	E6	10	123	KRFHNSGRW	19293
HPV33	E6	11	123	KRFHNSGRWA	19294
HPV33	E6	10	116	KRHVDLNKRF	19295
HPV33	E6	8	12	LHDLQAL	19296
HPV33	E6	10	67	LRFLSKISEY	19297
HPV33	E6	11	122	NKRFINISGRW	19298
HPV33	E6	10	9	PRTLHDLQQA	19299
HPV33	E6	11	9	PRTLHDLQAL	19300

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E6	8	38	QRSEVYDF	19301
HPV33	E6	9	38	QRSEVYDFA	19302
HPV33	E6	10	38	QRSEVYDFAF	19303
HPV33	E6	11	38	QRSEVYDFAF	19304
HPV33	E6	9	117	RHVDLNKRF	19305
HPV33	E6	8	77	RHYNYSVY	19306
HPV33	E6	9	71	SKISEYRHY	19307
HPV33	E6	11	71	SKISEYRHYNY	19308
HPV33	E6	8	142	SRRRRETAL	19309
HPV33	E6	8	92	VKKPLNEI	19310
HPV33	E6	9	92	VKKPLNEIL	19311
HPV33	E6	10	92	VKKPLNEILI	19312
HPV33	E6	9	140	WRSRRRETA	19313
HPV33	E6	10	140	WRSRRRETAL	19314
HPV33	E6	9	54	YREGNPFGI	19315
HPV33	E6	8	76	YRHYNYSV	19316
HPV33	E6	9	76	YRHYNYSVY	19317
HPV33	E7	8	58	CHTCNTTV	19318
HPV33	E7	10	58	CHTCNTTVRL	19319
HPV33	E7	10	39	DRPDGQAQPA	19320
HPV33	E7	9	3	GHIKPTLKEY	19321
HPV33	E7	10	3	GHIKPTLKEYV	19322
HPV33	E7	11	3	GHIKPTLKEYVL	19323
HPV33	E7	8	4	HKPTLKEY	19324
HPV33	E7	9	4	HKPTLKEYV	19325
HPV33	E7	10	4	HKPTLKEYVL	19326
HPV33	E7	8	8	LKEYVLDL	19327
HPV33	E7	9	8	LKEYVLDLY	19328
HPV33	E7	8	76	LRTIQQL	19329
HPV33	E7	9	76	LRTIQQLLM	19330
HPV33	E7	8	1	MRGIKPTL	19331
HPV33	E7	11	1	MRGIKPTLKEY	19332
HPV33	E7	9	65	VRLCVNSTA	19333
HPV33	L1	9	58	AKKLLVPKV	19334
HPV33	L1	8	475	AKPKLKRA	19335
HPV33	L1	9	475	AKPKLKRAA	19336
HPV33	L1	9	162	CKPPTGEIHW	19337
HPV33	L1	9	378	CKVTLTAEV	19338
HPV33	L1	10	378	CKVTLTAEVM	19339
HPV33	L1	9	229	CKYPDYLM	19340
HPV33	L1	8	168	EHWGKGVA	19341
HPV33	L1	9	435	EKEDPLGKY	19342
HPV33	L1	11	435	EKEDPLGKYTF	19343
HPV33	L1	10	452	EKFSADLDQF	19344
HPV33	L1	8	359	FKEYIRIIV	19345
HPV33	L1	11	359	FKEYIRIIVEEY	19346

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	11	210	FKTLQANKSDV	19347
HPV33	L1	11	74	FRVRLDPNKF	19348
HPV33	L1	8	318	GHNNGICW	19349
HPV33	L1	8	120	GHPLLNKF	19350
HPV33	L1	9	171	GKGVACTNA	19351
HPV33	L1	10	171	GKGVACTNAA	19352
HPV33	L1	8	441	GKYTFWEV	19353
HPV33	L1	10	441	GKYTFWEVDL	19354
HPV33	L1	8	109	GRGQPLGV	19355
HPV33	L1	10	109	GRGQPLGVGI	19356
HPV33	L1	8	464	GRKFLQA	19357
HPV33	L1	10	464	GRKFLQAAGL	19358
HPV33	L1	8	390	IHAMNPDI	19359
HPV33	L1	9	390	IHAMNPDIL	19360
HPV33	L1	8	277	IKSGTTA	19361
HPV33	L1	10	277	IKSGTTASI	19362
HPV33	L1	10	52	IKNPTNAKLL	19363
HPV33	L1	11	52	IKNPTNAKLL	19364
HPV33	L1	9	363	IRHVEEYDL	19365
HPV33	L1	11	363	IRHVEEYDLQF	19366
HPV33	L1	8	59	KKLLVPKV	19367
HPV33	L1	11	59	KKLLVPKVSGL	19368
HPV33	L1	10	473	LKAKPKLKRA	19369
HPV33	L1	11	473	LKAKPKLKRAA	19370
HPV33	L1	9	450	LKEKFSADL	19371
HPV33	L1	8	235	LKMTSEPY	19372
HPV33	L1	8	250	LRREQMFV	19373
HPV33	L1	11	250	LRREQMFVRHF	19374
HPV33	L1	10	82	NKFGPDTSF	19375
HPV33	L1	11	82	NKFGPDTSFY	19376
HPV33	L1	9	308	NKPYWLQRA	19377
HPV33	L1	9	216	NKSDVPIDI	19378
HPV33	L1	9	134	NKYPGPQA	19379
HPV33	L1	9	262	NRAGTLGEA	19380
HPV33	L1	10	262	NRAGTLGEAV	19381
HPV33	L1	9	144	NRECLSMIDY	19382
HPV33	L1	8	433	PKEKEDPL	19383
HPV33	L1	11	433	PKEKEDPLGKY	19384
HPV33	L1	8	64	PKVSGLQY	19385
HPV33	L1	10	64	PKVSGLQYRV	19386
HPV33	L1	11	64	PKVSGLQYRVF	19387
HPV33	L1	10	314	QRAQGINNGI	19388
HPV33	L1	8	97	QRLVWACV	19389
HPV33	L1	10	97	QRLVWACVGL	19390
HPV33	L1	10	258	RHFFNRAGTL	19391
HPV33	L1	8	364	RHVEEYDL	19392

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	10	364	RIIVEYDLQF	19393
HPV33	L1	11	364	RHVEYDLQFV	19394
HPV33	L1	9	465	RKFLQAGL	19395
HPV33	L1	11	465	RKFLQAGLKA	19396
HPV33	L1	10	251	RREQMFVRHF	19397
HPV33	L1	11	251	RREQMFVRHFF	19398
HPV33	L1	9	19	SKVVSTDEY	19399
HPV33	L1	10	19	SKVVSTDEYV	19400
HPV33	L1	10	40	SRLAVGHPY	19401
HPV33	L1	11	40	SRLAVGHPYF	19402
HPV33	L1	8	29	SRTSIYY	19403
HPV33	L1	9	29	SRTSIYYA	19404
HPV33	L1	8	337	TRSTNMTL	19405
HPV33	L1	11	487	TRTSSAKRKKV	19406
HPV33	L1	8	257	VRHFNRA	19407
HPV33	L1	11	257	VRHFNRACTL	19408
HPV33	L1	9	76	VRLDPNKF	19409
HPV33	L1	11	76	VRLDPNKF	19410
HPV33	L1	8	4	WRPSEATV	19411
HPV33	L1	9	4	WRPSEATVY	19412
HPV33	L1	10	4	WRPSEATVYL	19413
HPV33	L1	9	354	YKNENKEY	19414
HPV33	L1	10	354	YKNENKEYI	19415
HPV33	L1	8	152	YKQTQLCL	19416
HPV33	L1	9	152	YKQTQLCLL	19417
HPV33	L1	8	417	YRFVTSQA	19418
HPV33	L1	9	417	YRFVTSQAI	19419
HPV33	L1	8	71	YRVFRVRL	19420
HPV33	L2	9	320	ARIHYQDL	19421
HPV33	L2	11	21	CKATGTCPPDV	19422
HPV33	L2	9	335	DHTVPNEQY	19423
HPV33	L2	11	335	DHTVPNEQYEL	19424
HPV33	L2	10	179	GIHIFSSPTV	19425
HPV33	L2	8	315	GKQIGARI	19426
HPV33	L2	10	315	GKQIGARIHY	19427
HPV33	L2	11	315	GKQIGARIHY	19428
HPV33	L2	8	67	GRTGYVPI	19429
HPV33	L2	10	247	HKLITYDNPA	19430
HPV33	L2	11	247	HKLITYDNPAF	19431
HPV33	L2	10	3	HKRSTRKRA	19432
HPV33	L2	10	322	IHYQDLSP	19433
HPV33	L2	11	322	IHYQDLSPV	19434
HPV33	L2	10	88	IRPPVTVDV	19435
HPV33	L2	8	10	KRASATQL	19436
HPV33	L2	9	10	KRASATQLY	19437
HPV33	L2	10	454	KRPYFFTDV	19438

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	9	4	KRSTRKRRA	19439
HPV33	L2	11	4	KRSTRKRASA	19440
HPV33	L2	9	348	LHDTSTSS	19441
HPV33	L2	11	348	LHDTSTSSYSI	19442
HPV33	L2	9	169	LHPPAPAEA	19443
HPV33	L2	8	442	LHPSYFIL	19444
HPV33	L2	9	310	LKTRSGKQI	19445
HPV33	L2	11	310	LKTRSGKQIGA	19446
HPV33	L2	8	45	LKYGSLGV	19447
HPV33	L2	9	45	LKYGSLGVF	19448
HPV33	L2	10	45	LKYGSLGVFF	19449
HPV33	L2	8	449	LRRRRKRF	19450
HPV33	L2	10	449	LRRRRKRFPY	19451
HPV33	L2	11	449	LRRRRKRFPYF	19452
HPV33	L2	11	246	PIKLITYDNPA	19453
HPV33	L2	8	33	PKVEGSTI	19454
HPV33	L2	9	33	PKVEGSTIA	19455
HPV33	L2	8	269	QHSDISPA	19456
HPV33	L2	8	378	QHSYSTFA	19457
HPV33	L2	11	2	RHKRSTRKRRA	19458
HPV33	L2	9	296	RHTVFRSRV	19459
HPV33	L2	9	9	RKRASATQL	19460
HPV33	L2	10	9	RKRASATQLY	19461
HPV33	L2	8	453	RKRFPYFF	19462
HPV33	L2	11	453	RKRFPYFFTDV	19463
HPV33	L2	10	295	RRHTVFRSRV	19464
HPV33	L2	10	8	RKRASATQL	19465
HPV33	L2	11	8	RKRASATQLY	19466
HPV33	L2	8	452	RKRFPYF	19467
HPV33	L2	9	452	RKRFPYFF	19468
HPV33	L2	8	451	RKRKRFY	19469
HPV33	L2	9	451	RKRKRFYF	19470
HPV33	L2	10	451	RKRKRFYFF	19471
HPV33	L2	9	450	RKRKRFY	19472
HPV33	L2	10	450	RKRKRFYF	19473
HPV33	L2	11	450	RKRKRFYFF	19474
HPV33	L2	9	229	SRNTQQVKV	19475
HPV33	L2	10	229	SRNTQQVKVV	19476
HPV33	L2	9	219	SRPVARLGL	19477
HPV33	L2	10	219	SRPVARLGLY	19478
HPV33	L2	8	294	SRRHTRF	19479
HPV33	L2	11	294	SRRHTRFTRV	19480
HPV33	L2	9	302	SRVGQKATL	19481
HPV33	L2	8	7	TTRKRASA	19482
HPV33	L2	11	7	TTRKRASATQL	19483
HPV33	L2	9	312	TRSGKQIGA	19484

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	11	312	TRSGKQIGARI	19485
HPV33	L2	8	387	TRTSNVS	19486
HPV33	L2	10	387	TRTSNVSPL	19487
HPV33	L2	9	373	VHTPMQHSY	19488
HPV33	L2	8	235	VKVVDPAF	19489
HPV33	L2	9	235	VKVVDPAFL	19490
HPV33	L2	10	299	VFRSRVGKA	19491
HPV45	E1	10	255	AHIQCLCKW	19492
HPV45	E1	8	564	AKDNKWPY	19493
HPV45	E1	9	564	AKDNKWPYL	19494
HPV45	E1	8	284	AKGLSTLL	19495
HPV45	E1	10	284	AKGLSTLLHV	19496
HPV45	E1	8	125	AKRRLFTI	19497
HPV45	E1	8	392	AKYDKCA	19498
HPV45	E1	9	392	AKYDKCAV	19499
HPV45	E1	10	392	AKYDKCAVM	19500
HPV45	E1	8	262	CKWGVLL	19501
HPV45	E1	9	262	CKWGVLLA	19502
HPV45	E1	10	262	CKWGVLLAL	19503
HPV45	E1	11	262	CKWGVLLALL	19504
HPV45	E1	8	588	DKNGNPVY	19505
HPV45	E1	10	588	DKNGNPVYEI	19506
HPV45	E1	8	599	DKNWKCF	19507
HPV45	E1	8	222	DKTCTDW	19508
HPV45	E1	9	222	DKTCTDWV	19509
HPV45	E1	10	222	DKTCTDWVM	19510
HPV45	E1	11	222	DKTCTDWVMA	19511
HPV45	E1	8	541	DRKHKPLL	19512
HPV45	E1	10	541	DRKHKPLLQL	19513
HPV45	E1	8	25	EKKTGDVI	19514
HPV45	E1	9	607	ERTWSRLDL	19515
HPV45	E1	10	70	FHAQEVQND	19516
HPV45	E1	9	204	FKDIYGLSF	19517
HPV45	E1	11	219	FKSDKTTCTDW	19518
HPV45	E1	8	244	FKTLIKPA	19519
HPV45	E1	10	244	FKTLIKPATL	19520
HPV45	E1	11	244	FKTLIKPATLY	19521
HPV45	E1	9	121	GHHKAKRRL	19522
HPV45	E1	10	121	GHHKAKRRLF	19523
HPV45	E1	8	277	GKNRLTVA	19524
HPV45	E1	11	277	GKNRLTVAKGL	19525
HPV45	E1	9	475	GKSYFGMSF	19526
HPV45	E1	10	475	GKSYFGMSFI	19527
HPV45	E1	8	122	HKKAKRRL	19528
HPV45	E1	9	122	HKKAKRRLF	19529
HPV45	E1	11	122	HKKAKRRLFTI	19530

0305 T 0303 " 0303 T 0305 0303
0303 T 0303 " 0303 T 0305 0303

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	8	484	IHFLOGAI	19531
HPV45	E1	9	484	IHFLOGAII	19532
HPV45	E1	11	484	IHFLOGAISF	19533
HPV45	E1	8	248	IKPATLYA	19534
HPV45	E1	10	248	IKPATLYAHI	19535
HPV45	E1	8	419	IKYRCSKI	19536
HPV45	E1	8	543	KHKPLLQL	19537
HPV45	E1	8	196	KKAAMLAV	19538
HPV45	E1	9	196	KKAAMLAVF	19539
HPV45	E1	8	123	KKAKRRLF	19540
HPV45	E1	10	123	KKAKRRLFTI	19541
HPV45	E1	8	462	KKNCILLY	19542
HPV45	E1	11	462	KKNCILLYGPA	19543
HPV45	E1	8	406	KRAQKRQM	19544
HPV45	E1	10	406	KRAQKRQNM	19545
HPV45	E1	9	410	KROMNMSQW	19546
HPV45	E1	10	410	KROMNMSQWI	19547
HPV45	E1	8	615	LHEDDEDA	19548
HPV45	E1	8	82	LHLLKRKF	19549
HPV45	E1	9	82	LHLLKRKFA	19550
HPV45	E1	8	291	LHVPETCM	19551
HPV45	E1	9	291	LHVPETCML	19552
HPV45	E1	10	291	LHVPETCMLI	19553
HPV45	E1	8	550	LKCPHILL	19554
HPV45	E1	11	395	LKDCAVMCRHY	19555
HPV45	E1	10	457	LKGTPKKNCI	19556
HPV45	E1	11	457	LKGTPKKNCIL	19557
HPV45	E1	9	386	LKSNCOAKY	19558
HPV45	E1	10	386	LKSNCOAKYL	19559
HPV45	E1	8	450	LRALKEFL	19560
HPV45	E1	8	305	LRSSVAAL	19561
HPV45	E1	9	305	LRSSVAALY	19562
HPV45	E1	10	305	LRSSVAALYW	19563
HPV45	E1	11	305	LRSSVAALYWY	19564
HPV45	E1	10	272	LYKCGKNRL	19565
HPV45	E1	8	439	LYQGVF	19566
HPV45	E1	9	439	LYQGVFV	19567
HPV45	E1	11	439	LYQGVFVIF	19568
HPV45	E1	10	529	MRNALDGNPI	19569
HPV45	E1	8	195	NKKAAMLA	19570
HPV45	E1	9	195	NKKAAMLAV	19571
HPV45	E1	10	195	NKKAAMLAVF	19572
HPV45	E1	10	567	NKWPYLESRV	19573
HPV45	E1	9	279	NRLTVAKGL	19574
HPV45	E1	8	180	PHCSITEL	19575
HPV45	E1	11	180	PHCSITELKEL	19576

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	8	461	PKKNCILL	19577
HPV45	E1	9	461	PKKNCILLY	19578
HPV45	E1	8	303	PKLRSSVA	19579
HPV45	E1	9	303	PKLRSSVAA	19580
HPV45	E1	10	303	PKLRSSVAAL	19581
HPV45	E1	11	303	PKLRSSVAALY	19582
HPV45	E1	8	111	PRLQEISL	19583
HPV45	E1	9	340	QHGIIDDSNF	19584
HPV45	E1	11	340	QHGIIDDSNFDL	19585
HPV45	E1	10	409	QKRQNMMSQW	19586
HPV45	E1	11	409	QKRQNMMSQWI	19587
HPV45	E1	10	334	QRLTIQHGI	19588
HPV45	E1	11	403	RHYKRAQKRQM	19589
HPV45	E1	9	542	RKHKPLQL	19590
HPV45	E1	11	127	RRLFTSDSGY	19591
HPV45	E1	8	499	SHFWLEPL	19592
HPV45	E1	9	499	SHFWLEPLA	19593
HPV45	E1	11	93	SKENSPGGEQL	19594
HPV45	E1	8	424	SKIDEGGDW	19595
HPV45	E1	9	574	SRVTVTF	19596
HPV45	E1	11	574	SRVTVTFPPHA	19597
HPV45	E1	8	518	THTCWTYF	19598
HPV45	E1	11	518	THTCWTYFDNY	19599
HPV45	E1	9	509	TKVAMLDDA	19600
HPV45	E1	9	602	WKCFERTW	19601
HPV45	E1	8	432	WRPIVQFL	19602
HPV45	E1	10	432	WRPIVQFLRY	19603
HPV45	E1	8	274	YKCGKNRL	19604
HPV45	E1	10	274	YKCGKNRLTV	19605
HPV45	E1	11	274	YKCGKNRLTVA	19606
HPV45	E1	9	405	YKRAQKRQM	19607
HPV45	E1	11	405	YKRAQKRQNM	19608
HPV45	E1	8	315	YRTGISNI	19609
HPV45	E1	11	315	YRTGISNISEV	19610
HPV45	E2	9	75	AHKAIELQM	19611
HPV45	E2	10	75	AHKAIELQMA	19612
HPV45	E2	11	75	AHKAIELQMAL	19613
HPV45	E2	9	52	AREHIGITKL	19614
HPV45	E2	10	23	DHYENDSKDI	19615
HPV45	E2	10	315	DHYSEISSTW	19616
HPV45	E2	8	299	DKNSLKCL	19617
HPV45	E2	10	299	DKNSLKCLRY	19618
HPV45	E2	9	153	DKTAACVSY	19619
HPV45	E2	10	153	DKTAACVSYW	19620
HPV45	E2	11	54	EIIGITKLNHQV	19621
HPV45	E2	9	183	EKYGNSNTW	19622

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E2	11	183	EKYGNSNTWEV	19623
HPV45	E2	10	12	ERLSALQDKI	19624
HPV45	E2	11	12	ERLSALQDKIL	19625
HPV45	E2	8	116	FKKGGKTV	19626
HPV45	E2	10	116	FKKGGKTVHV	19627
HPV45	E2	11	116	FKKGGKTVHVV	19628
HPV45	E2	8	178	FKSECEKY	19629
HPV45	E2	8	120	GKTVIIVYF	19630
HPV45	E2	11	262	GRVNTIVHNPL	19631
HPV45	E2	9	260	HHGRVNTHV	19632
HPV45	E2	8	76	HKAIQLQM	19633
HPV45	E2	9	76	HKAIQLQMA	19634
HPV45	E2	10	76	HKAIQLQMAL	19635
HPV45	E2	10	294	IHLKGDKNLS	19636
HPV45	E2	8	167	IKDGDITY	19637
HPV45	E2	9	167	IKDGDITYY	19638
HPV45	E2	10	167	IKDGDITYYV	19639
HPV45	E2	8	42	IRLENAIL	19640
HPV45	E2	9	42	IRLENAILF	19641
HPV45	E2	11	42	IRLENAILFTA	19642
HPV45	E2	9	117	KKGGKTVHV	19643
HPV45	E2	10	117	KKGGKTVHVV	19644
HPV45	E2	11	117	KKGGKTVHVYF	19645
HPV45	E2	8	249	KRPRQCGL	19646
HPV45	E2	8	303	LKCLRYRL	19647
HPV45	E2	11	303	LKCLRYRLRKY	19648
HPV45	E2	8	296	LKGDKNLS	19649
HPV45	E2	11	296	LKGDKNLSKCL	19650
HPV45	E2	9	85	LKGLAQSKY	19651
HPV45	E2	8	310	LRKYADHY	19652
HPV45	E2	11	310	LRKYADHYSEI	19653
HPV45	E2	8	306	LYRLRKY	19654
HPV45	E2	9	306	LYRLRKYA	19655
HPV45	E2	10	1	MKMQTPKESL	19656
HPV45	E2	8	61	NHQVVPPI	19657
HPV45	E2	10	61	NHQVVPPI	19658
HPV45	E2	8	130	NKDNCMNY	19659
HPV45	E2	9	130	NKDNCMNYV	19660
HPV45	E2	10	130	NKDNCMNYVV	19661
HPV45	E2	11	130	NKDNCMNYVVW	19662
HPV45	E2	9	330	NKNTGILTV	19663
HPV45	E2	11	330	NKNTGILTVTY	19664
HPV45	E2	9	6	PKESLSERL	19665
HPV45	E2	11	6	PKESLSERLSA	19666
HPV45	E2	9	239	PKPHIQTPA	19667
HPV45	E2	11	224	QHAISTTPKTA	19668

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	11	466	EKQDPYDKLKF	19761
HPV45	L1	8	390	FKHYSRIIV	19762
HPV45	L1	11	390	FKHYSRIIVEEY	19763
HPV45	L1	11	100	FRVALPDPNKF	19764
HPV45	L1	8	76	FRVVPSTA	19765
HPV45	L1	8	8	GHGHIIFL	19766
HPV45	L1	11	8	GHGHIIFLKNV	19767
HPV45	L1	8	347	GHNNGICW	19768
HPV45	L1	8	146	GHPFYNKL	19769
HPV45	L1	8	135	GRGQPLGI	19770
HPV45	L1	10	135	GRGQPLGIGL	19771
HPV45	L1	8	495	GRKFLVQA	19772
HPV45	L1	10	495	GRKFLVQAAGL	19773
HPV45	L1	10	343	HKAQGHNNGI	19774
HPV45	L1	8	421	IHSMNSSI	19775
HPV45	L1	9	421	IHSMNSSIL	19776
HPV45	L1	8	304	IKGTSANM	19777
HPV45	L1	10	391	KHYSRHVEEY	19778
HPV45	L1	10	514	KRPAASTSTA	19779
HPV45	L1	11	342	LHKAQGHNNGI	19780
HPV45	L1	9	481	LKEKFSSDL	19781
HPV45	L1	8	474	LKFWTVDL	19782
HPV45	L1	11	217	LKNTIEDGDM	19783
HPV45	L1	9	15	LKNVNVPI	19784
HPV45	L1	10	15	LKNVNVPIF	19785
HPV45	L1	11	15	LKNVNVPIFL	19786
HPV45	L1	8	277	LRREQLFA	19787
HPV45	L1	11	277	LRREQLFARHF	19788
HPV45	L1	9	311	MRETPGSCV	19789
HPV45	L1	10	311	MRETPGSCVY	19790
HPV45	L1	10	108	NKFGLPDSTI	19791
HPV45	L1	11	108	NKFGLPDSTIY	19792
HPV45	L1	9	151	NKLDATESA	19793
HPV45	L1	11	151	NKLDATESAHA	19794
HPV45	L1	9	337	NKPYWLHKA	19795
HPV45	L1	8	85	NKQAVPKV	19796
HPV45	L1	10	85	NKQAVPKVSA	19797
HPV45	L1	11	85	NKQAVPKVSAY	19798
HPV45	L1	10	289	NRAGVMGDTV	19799
HPV45	L1	8	90	PKVSAYQY	19800
HPV45	L1	10	90	PKVSAYQYRV	19801
HPV45	L1	11	90	PKVSAYQYRVF	19802
HPV45	L1	8	123	QRLVWACV	19803
HPV45	L1	10	123	QRLVWACVGM	19804
HPV45	L1	9	285	RIIFWNRAGV	19805
HPV45	L1	10	285	RHFWNRAGVM	19806

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	8	395	RHVEEYDL	19807
HPV45	L1	10	395	RHVEEYDLQF	19808
HPV45	L1	11	395	RHVEEYDLQFI	19809
HPV45	L1	9	496	RKFLVQAGL	19810
HPV45	L1	11	513	RKRPAASTSTA	19811
HPV45	L1	10	278	RREQLFARHF	19812
HPV45	L1	11	278	RREQLFARHFW	19813
HPV45	L1	9	394	SRHVEEYDL	19814
HPV45	L1	11	394	SRHVEEYDLQF	19815
HPV45	L1	10	66	SRLLTGPNPY	19816
HPV45	L1	11	66	SRLLTGPNPYF	19817
HPV45	L1	9	524	SRPAKRVR	19818
HPV45	L1	9	55	SRTSIFYHA	19819
HPV45	L1	9	243	TKCEVPLDI	19820
HPV45	L1	10	388	TKFKHYSRHV	19821
HPV45	L1	8	366	TRSTNLT	19822
HPV45	L1	10	366	TRSTNLTCA	19823
HPV45	L1	9	170	VRDNVSDY	19824
HPV45	L1	9	354	WHNQLFVT	19825
HPV45	L1	10	354	WHNQLFVTV	19826
HPV45	L1	8	30	WRPSDSTV	19827
HPV45	L1	9	30	WRPSDSTVY	19828
HPV45	L1	10	30	WRPSDSTVYL	19829
HPV45	L1	8	61	YHAGSSRL	19830
HPV45	L1	11	61	YHAGSSRLLT	19831
HPV45	L1	8	178	YKQTQLCI	19832
HPV45	L1	9	178	YKQTQLCIL	19833
HPV45	L1	8	448	YRFVQSV	19834
HPV45	L1	9	448	YRFVQSVAV	19835
HPV45	L1	8	97	YRVFRVAL	19836
HPV45	L2	8	7	ARRKRASA	19837
HPV45	L2	11	7	ARRKRASATDL	19838
HPV45	L2	11	21	CKQSGTCPPDV	19839
HPV45	L2	9	42	DKILQWSSL	19840
HPV45	L2	11	42	DKILQWSSLGI	19841
HPV45	L2	8	310	GKQIGGRV	19842
HPV45	L2	10	310	GKQIGGRVHF	19843
HPV45	L2	11	310	GKQIGGRVHIF	19844
HPV45	L2	9	76	GRSNTVVVDV	19845
HPV45	L2	8	67	GRTGYVPL	19846
HPV45	L2	9	315	GRVHFYIDI	19847
HPV45	L2	9	365	IKSFTYPKY	19848
HPV45	L2	11	365	IKSFTYPKYSL	19849
HPV45	L2	9	4	HRAARRKRA	19850
HPV45	L2	11	4	IIRAARRKRASA	19851
HPV45	L2		4		19852

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	8	431	IHGTYYL	19853
HPV45	L2	9	431	IHGTYLW	19854
HPV45	L2	11	431	IHGTYLWPW	19855
HPV45	L2	10	364	IHKSTYPKY	19856
HPV45	L2	8	280	IRLHRPAL	19857
HPV45	L2	8	447	KKRKRIPY	19858
HPV45	L2	9	447	KKRKRIPYF	19859
HPV45	L2	10	447	KKRKRIPYFF	19860
HPV45	L2	11	447	KKRKRIPYFFA	19861
HPV45	L2	8	10	KRASATDL	19862
HPV45	L2	9	10	KRASATDLY	19863
HPV45	L2	8	450	KRIPYFFA	19864
HPV45	L2	11	450	KRIPYFFADGF	19865
HPV45	L2	8	448	KRKRIPYF	19866
HPV45	L2	9	448	KRKRIPYFF	19867
HPV45	L2	10	448	KRKRIPYFFA	19868
HPV45	L2	8	33	NKVEGTLL	19869
HPV45	L2	9	33	NKVEGTLLA	19870
HPV45	L2	9	446	PKKRKRIPY	19871
HPV45	L2	10	446	PKKRKRIPYF	19872
HPV45	L2	11	446	PKKRKRIPYFF	19873
HPV45	L2	11	371	PKYSLTMPSTA	19874
HPV45	L2	11	224	PRLYSRANQQV	19875
HPV45	L2	9	9	RKRASATDL	19876
HPV45	L2	10	9	RKRASATDLY	19877
HPV45	L2	8	449	RKRIPYF	19878
HPV45	L2	9	449	RKRIPYFFA	19879
HPV45	L2	10	290	RRGTVRFSL	19880
HPV45	L2	10	8	RRKRASATDL	19881
HPV45	L2	11	8	RRKRASATDLY	19882
HPV45	L2	8	219	RRVRGPRL	19883
HPV45	L2	9	219	RRVRGPRLY	19884
HPV45	L2	9	189	SHGYEEIPL	19885
HPV45	L2	10	3	SHRAARRKRA	19886
HPV45	L2	9	228	SRANQQVRV	19887
HPV45	L2	9	297	SRLGQRATM	19888
HPV45	L2	10	297	SRLGQRATMF	19889
HPV45	L2	8	289	SRRGTVRF	19890
HPV45	L2	11	289	SRRGTVRFSL	19891
HPV45	L2	9	243	THPSSLVTF	19892
HPV45	L2	10	87	TRPPVVEPV	19893
HPV45	L2	11	307	TRSGKQIGGRV	19894
HPV45	L2	10	317	VHFYHDISPI	19895
HPV45	L2	11	317	VHFYHDISPIA	19896
HPV45	L2	10	294	VRFSLGQRA	19897
HPV45	L2	10	221	VRGPRLYSRA	19898

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B27 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	9	218	VRRVRGPRRL	19899
HPV45	L2	10	218	VRRVRGPRLY	19900
HPV45	L2	8	234	VRVSTSQF	19901
HPV45	L2	9	234	VRVSTSQFL	19902
HPV45	L2	8	320	YHDISPIA	19903
HPV45	L2	9	320	YHDISPIAA	19904
HPV56	E2	9	10	AKACSAIEV	19905
HPV56	E2	11	10	AKACSAIEVQI	19906
HPV56	E2	10	202	AKCVTTHI	19907
HPV56	E2	9	118	AKKFGCKNI	19908
HPV56	E2	10	118	AKKFGCKNIW	19909
HPV56	E2	8	8	CKAKACSA	19910
HPV56	E2	9	8	CKAKACSAI	19911
HPV56	E2	11	8	CKAKACSAIEV	19912
HPV56	E2	9	123	CKNIWEVHM	19913
HPV56	E2	8	146	CRYNVSPV	19914
HPV56	E2	11	146	CRYNVSPVETV	19915
HPV56	E2	8	250	CRYRFQKY	19916
HPV56	E2	11	250	CRYRFQKYKTL	19917
HPV56	E2	9	232	DKTTPVVHL	19918
HPV56	E2	8	53	FKKEGQHI	19919
HPV56	E2	10	53	FKKEGQHIEV	19920
HPV56	E2	11	53	FKKEGQHIEVW	19921
HPV56	E2	9	106	GHKTYTDF	19922
HPV56	E2	11	184	GKRRLRESEF	19923
HPV56	E2	11	162	HKTTTTSTSV	19924
HPV56	E2	8	107	IKTYTDF	19925
HPV56	E2	9	181	HRPGKRPRL	19926
HPV56	E2	11	50	KKCFKKEGQHI	19927
HPV56	E2	9	54	KKEGQHIEV	19928
HPV56	E2	10	54	KKEGQHIEVW	19929
HPV56	E2	11	54	KKEGQHIEVWF	19930
HPV56	E2	8	119	KKFGCKNI	19931
HPV56	E2	9	119	KKFGCKNIW	19932
HPV56	E2	11	119	KKFGCKNIWEV	19933
HPV56	E2	10	185	KRRLRESEF	19934
HPV56	E2	8	247	LKCCRYRF	19935
HPV56	E2	11	247	LKCCRYRFQKY	19936
HPV56	E2	8	240	LKGEFNRL	19937
HPV56	E2	8	37	LRDTCEEL	19938
HPV56	E2	9	37	LRDTCEELW	19939
HPV56	E2	10	37	LRDTCEELWL	19940
HPV56	E2	10	228	NHPGDKTTPV	19941
HPV56	E2	11	228	NHPGDKTTPVV	19942
HPV56	E2	9	275	NKNYSIITI	19943
HPV56	E2	10	275	NKNYSIITII	19944

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E2	11	275	NKNYSIITIY	19945
HPV56	E2	8	245	NRLKCCRY	19946
HPV56	E2	10	245	NRLKCCRYRF	19947
HPV56	E2	8	187	PLRESEF	19948
HPV56	E2	9	89	QKVCSGVDY	19949
HPV56	E2	8	255	QKYKTLFV	19950
HPV56	E2	10	255	QKYKTLFVDV	19951
HPV56	E2	9	290	QRNSFLSHV	19952
HPV56	E2	11	290	QRNSFLSHVKI	19953
HPV56	E2	10	180	SIIRPGKRRL	19954
HPV56	E2	8	296	SHVKIPVV	19955
HPV56	E2	9	296	SHVKIPVVY	19956
HPV56	E2	11	296	SHVKIPVVYRL	19957
HPV56	E2	8	67	SKNNCMQY	19958
HPV56	E2	9	67	SKNNCMQYV	19959
HPV56	E2	10	67	SKNNCMQYVA	19960
HPV56	E2	11	67	SKNNCMQYVAW	19961
HPV56	E2	9	197	SRESHAKCV	19962
HPV56	E2	8	103	VIIDGHKTY	19963
HPV56	E2	9	103	VHDGHKTTY	19964
HPV56	E2	10	238	VHLKGPRL	19965
HPV56	E2	8	129	VHMENESI	19966
HPV56	E2	9	129	VHMENESIY	19967
HPV56	E2	9	298	VKIPVVYRL	19968
HPV56	E2	10	298	VKIPVVYRLV	19969
HPV56	E2	11	298	VKIPVVYRLVW	19970
HPV56	E2	11	268	YHWTSTDKNY	19971
HPV56	E2	10	285	YKDETQRNSF	19972
HPV56	E2	11	285	YKDETQRNSFL	19973
HPV56	E2	8	257	YKTLFVDV	19974
HPV56	E2	9	252	YRFQKYKTL	19975
HPV56	E2	10	252	YRFQKYKTLF	19976
HPV56	E2	11	252	YRFQKYKTLFV	19977
HPV56	E2	9	132	AHGWTGSL	19978
HPV56	E6	8	36	CKKELTRA	19979
HPV56	E6	10	36	CKKELTRAFLV	19980
HPV56	E6	11	36	CKKELTRAFLVY	19981
HPV56	E6	8	66	CRVCLLFV	19982
HPV56	E6	11	66	CRVCLLFYSKV	19983
HPV56	E6	8	123	DRKRRFIL	19984
HPV56	E6	9	123	DRKRRFILH	19985
HPV56	E6	10	123	DRKRRFILHIA	19986
HPV56	E6	9	10	ERPRSLHHL	19987
HPV56	E6	8	128	FHLIAHW	19988
HPV56	E6	9	16	HHLSEVLEI	19989
HPV56	E6	11	16	HHLSEVLEIPL	19990

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E6	10	104	IRCYRCQSPL	19991
HPV56	E6	9	37	KKELTRAEV	19992
HPV56	E6	10	37	KKELTRAEVY	19993
HPV56	E6	8	96	KKQLCDLL	19994
HPV56	E6	9	96	KKQLCDLLI	19995
HPV56	E6	8	125	KRRFHLLA	19996
HPV56	E6	11	125	KRRFHLLAHGW	19997
HPV56	E6	9	120	LHCDRKRFR	19998
HPV56	E6	11	120	LHCDRKRFRHLL	19999
HPV56	E6	8	15	LHLLSEVL	20000
HPV56	E6	10	15	LHLLSEVLEI	20001
HPV56	E6	9	53	LKLVRDDF	20002
HPV56	E6	11	53	LKLVRDDFPY	20003
HPV56	E6	10	12	PRSLHLLSEV	20004
HPV56	E6	11	12	PRSLHLLSEVL	20005
HPV56	E6	8	124	RKRRFHLL	20006
HPV56	E6	9	124	RKRRFHLLA	20007
HPV56	E6	8	77	RKYRYDY	20008
HPV56	E6	10	77	RKYRYDYDV	20009
HPV56	E6	11	77	RKYRYDYDVY	20010
HPV56	E6	10	126	RREHLLAHGW	20011
HPV56	E6	8	74	SKVRKYRY	20012
HPV56	E6	9	74	SKVRKYRYV	20013
HPV56	E6	11	74	SKVRKYRYDY	20014
HPV56	E6	9	147	SREPRESTV	20015
HPV56	E6	8	95	TKKQLCDL	20016
HPV56	E6	9	95	TKKQLCDLL	20017
HPV56	E6	10	95	TKKQLCDLLI	20018
HPV56	E6	8	41	TRAEVYNF	20019
HPV56	E6	9	41	TRAEVYNFA	20020
HPV56	E6	9	76	VRKYRYDY	20021
HPV56	E6	11	76	VRKYRYDYDV	20022
HPV56	E6	8	57	YRDDEPYA	20023
HPV56	E6	9	57	YRDDEPYAV	20024
HPV56	E6	8	79	YRYDYDV	20025
HPV56	E6	9	79	YRYDYDVY	20026
HPV56	E6	11	79	YRYDYDVYGA	20027
HPV56	E7	8	53	AKQHTCYL	20028
HPV56	E7	9	53	AKQHTCYLI	20029
HPV56	E7	11	53	AKQHTCYLIHV	20030
HPV56	E7	10	50	ARQAKQHTCY	20031
HPV56	E7	11	50	ARQAKQHTCYL	20032
HPV56	E7	9	68	CKFVQLDI	20033
HPV56	E7	10	41	DHLQERPQQA	20034
HPV56	E7	9	45	ERPOQARQA	20035
HPV56	E7	9	3	GKVPTLQDV	20036

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E7	10	3	GKVPTLQDVV	20037
HPV56	E7	11	3	GKVPTLQDVVL	20038
HPV56	E7	10	61	IHVPCCECKF	20039
HPV56	E7	11	61	IHVPCCECKFV	20040
HPV56	E7	8	83	LRVVQQLL	20041
HPV56	E7	9	83	LRVVQQLLM	20042
HPV56	E7	11	83	LRVVQQLLMGA	20043
HPV56	E7	8	1	MHGKVPTL	20044
HPV56	E7	11	1	MHGKVPTLQDV	20045
HPV56	E7	9	55	QHTCYLIIV	20046
HPV56	E7	8	79	TKEDLRVV	20047
HPV56	E7	11	79	TKEDLRVVQQL	20048
HPV56	L1	8	475	AKYKFWDV	20049
HPV56	L1	10	475	AKYKFWDVNL	20050
HPV56	L1	8	291	ARIHYFNRA	20051
HPV56	L1	11	291	ARIHYFNRAKGV	20052
HPV56	L1	8	390	ARKINQYL	20053
HPV56	L1	11	390	ARKINQYLRHV	20054
HPV56	L1	9	412	CKITLSAEV	20055
HPV56	L1	10	412	CKITLSAEVM	20056
HPV56	L1	11	412	CKITLSAEVMA	20057
HPV56	L1	9	263	CKYPDYLKM	20058
HPV56	L1	11	263	CKYPDYLKMSA	20059
HPV56	L1	10	449	DKYRYVRSTA	20060
HPV56	L1	11	449	DKYRYVRSTAI	20061
HPV56	L1	8	201	EHWTKGAV	20062
HPV56	L1	9	469	EKQDPLAKY	20063
HPV56	L1	11	469	EKQDPLAKYKF	20064
HPV56	L1	8	130	ERLVWACV	20065
HPV56	L1	10	130	ERLVWACVGL	20066
HPV56	L1	9	244	FKVLQESKA	20067
HPV56	L1	11	244	FKVLQESKAEV	20068
HPV56	L1	11	107	FRVRLDPNKF	20069
HPV56	L1	8	352	GINNGICW	20070
HPV56	L1	8	153	GHPLFNRL	20071
HPV56	L1	8	185	GKQTQLCI	20072
HPV56	L1	9	185	GKQTQLCIV	20073
HPV56	L1	9	299	GKVGETIPA	20074
HPV56	L1	11	299	GKVGETIPAEI	20075
HPV56	L1	9	316	GREPPSSV	20076
HPV56	L1	10	316	GREPPSSVY	20077
HPV56	L1	11	316	GREPPSSVYV	20078
HPV56	L1	8	142	GRGQPLGA	20079
HPV56	L1	10	142	GRGQPLGAGL	20080
HPV56	L1	8	498	GRKFLMQL	20081
HPV56	L1	9	64	KRTSIFYIIA	20082

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	8	424	LHNMNANL	20083
HPV56	L1	9	424	LHNMNANLL	20084
HPV56	L1	8	14	LHYGLCIF	20085
HPV56	L1	9	14	LHYGLCIFL	20086
HPV56	L1	11	14	LHYGLCIFLDV	20087
HPV56	L1	8	269	LKMSADAY	20088
HPV56	L1	9	397	LRHVEEYEL	20089
HPV56	L1	11	397	LRHVEEYELQF	20090
HPV56	L1	8	284	LRREQLFA	20091
HPV56	L1	11	284	LRREQLFARHY	20092
HPV56	L1	10	115	NKFGLPDTNI	20093
HPV56	L1	11	115	NKFGLPDTNIY	20094
HPV56	L1	9	342	NKPYWLQRA	20095
HPV56	L1	10	44	NKVYLPPTPV	20096
HPV56	L1	10	296	NRACKVGETI	20097
HPV56	L1	11	158	NRLDDTESSNL	20098
HPV56	L1	8	97	PKVSAYQY	20099
HPV56	L1	10	97	PKVSAYQYRV	20100
HPV56	L1	11	97	PKVSAYQYRVF	20101
HPV56	L1	10	348	QRAQGINNGI	20102
HPV56	L1	8	398	RHVEEYEL	20103
HPV56	L1	10	398	RHVEEYELQF	20104
HPV56	L1	11	398	RHVEEYELQFV	20105
HPV56	L1	10	292	RHYFNRAKGV	20106
HPV56	L1	10	391	RKINQYLRHV	20107
HPV56	L1	10	285	RREQLFARHY	20108
HPV56	L1	11	285	RREQLFARHYF	20109
HPV56	L1	9	250	SKAEVPLDI	20110
HPV56	L1	10	250	SKAEVPLDIV	20111
HPV56	L1	9	54	SKVVATDSY	20112
HPV56	L1	10	54	SKVVATDSYV	20113
HPV56	L1	8	386	SKYDARKI	20114
HPV56	L1	11	386	SKYDARKINQY	20115
HPV56	L1	10	75	SRLAVGHIPY	20116
HPV56	L1	11	75	SRLAVGHIPYY	20117
HPV56	L1	9	88	TKDNTKTI	20118
HPV56	L1	11	204	TKGAVCKSTQV	20119
HPV56	L1	8	92	TKTNIPKV	20120
HPV56	L1	10	92	TKTNIPKUSA	20121
HPV56	L1	11	92	TKTNIPKVSAY	20122
HPV56	L1	8	507	TRSKPAVA	20123
HPV56	L1	8	371	TRSTNMTI	20124
HPV56	L1	11	371	TRSTNMTISTA	20125
HPV56	L1	8	63	VKRTSIFY	20126
HPV56	L1	10	63	VKRTSIFYIIA	20127
HPV56	L1	9	109	VRLDPNKF	20128

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	11	109	VRLDPNKFGL	20129
HPV56	L1	8	39	WRPSENKV	20130
HPV56	L1	9	39	WRPSENKVY	20131
HPV56	L1	10	39	WRPSENKVYL	20132
HPV56	L1	8	70	YHAGSSRL	20133
HPV56	L1	9	70	YHAGSSRL	20134
HPV56	L1	10	70	YHAGSSRLLA	20135
HPV56	L1	11	70	YHAGSSRLLA	20136
HPV56	L1	8	477	YKFWDVNL	20137
HPV56	L1	8	9	YRDPPLHY	20138
HPV56	L1	10	9	YRDPPLHYGL	20139
HPV56	L1	8	104	YRVFRVRL	20140
HPV56	L1	8	451	YRYVRSTA	20141
HPV56	L1	9	451	YRYVRSTAI	20142
HPV56	L1	10	371	AHLPIKPSTL	20143
HPV56	L2	10	3	AHRATRRKRA	20144
HPV56	L2	10	87	ARPIIVVESV	20145
HPV56	L2	9	315	ARVHYYYDI	20146
HPV56	L2	11	21	CKLSGTCPEDV	20147
HPV56	L2	9	42	DKILQWGS	20148
HPV56	L2	10	42	DKILQWGSF	20149
HPV56	L2	9	243	DRPATLVA	20150
HPV56	L2	9	218	FRRIAAPRL	20151
HPV56	L2	10	218	FRRIAAPRL	20152
HPV56	L2	9	445	FRRRRKRI	20153
HPV56	L2	11	445	FRRRRKRIPI	20154
HPV56	L2	8	67	GRAGYVPL	20155
HPV56	L2	9	4	HRATRRKRA	20156
HPV56	L2	11	4	HRATRRKRA	20157
HPV56	L2	9	189	IHSYEEIPM	20158
HPV56	L2	8	375	IKPSTLSF	20159
HPV56	L2	9	375	IKPSTLSFA	20160
HPV56	L2	8	10	KRASATQL	20161
HPV56	L2	9	10	KRASATQLY	20162
HPV56	L2	8	451	KRIPYFA	20163
HPV56	L2	8	33	NKIEQKTW	20164
HPV56	L2	9	33	NKIEQKTWA	20165
HPV56	L2	8	224	PRLYRKAF	20166
HPV56	L2	11	224	PRLYRKAFQV	20167
HPV56	L2	8	37	QKTWADKI	20168
HPV56	L2	9	37	QKTWADKIL	20169
HPV56	L2	11	37	QKTWADKILQW	20170
HPV56	L2	9	228	RKAFOQVKV	20171
HPV56	L2	9	9	RKRASATQL	20172
HPV56	L2	10	9	RKRASATQLY	20173
HPV56	L2	8	450	RKRIPYFF	20174

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	9	450	RKRIPYFFA	20175
HPV56	L2	10	290	RRGGVRF SRL	20176
HPV56	L2	8	308	RRGTQIGA	20177
HPV56	L2	10	308	RRGTQIGARV	20178
HPV56	L2	8	219	RRIAAPRL	20179
HPV56	L2	9	219	RRIAAPRLY	20180
HPV56	L2	10	8	RRKRASATQL	20181
HPV56	L2	11	8	RRKRASATQLY	20182
HPV56	L2	8	449	RKRIPYF	20183
HPV56	L2	9	449	RKRIPYFF	20184
HPV56	L2	10	449	RKRIPYFFA	20185
HPV56	L2	8	448	RRKRIPY	20186
HPV56	L2	9	448	RRKRIPYF	20187
HPV56	L2	10	448	RRKRIPYFF	20188
HPV56	L2	11	448	RRKRIPYFFA	20189
HPV56	L2	9	447	RRRRKRIPY	20190
HPV56	L2	10	447	RRRRKRIPYF	20191
HPV56	L2	11	447	RRRRKRIPYFF	20192
HPV56	L2	8	446	RRRRKRIPY	20193
HPV56	L2	10	446	RRRRKRIPYF	20194
HPV56	L2	11	446	RRRRKRIPYFF	20195
HPV56	L2	9	297	SRLGRKATI	20196
HPV56	L2	9	76	SRPSTIVDV	20197
HPV56	L2	11	427	THDVYIQGSSF	20198
HPV56	L2	8	155	THITNPLF	20199
HPV56	L2	9	155	THITNPLFI	20200
HPV56	L2	8	289	TRRGGVRF	20201
HPV56	L2	11	289	TRRGGVRF SRL	20202
HPV56	L2	9	307	TRRGQTIGA	20203
HPV56	L2	11	307	TRRGQTIGARV	20204
HPV56	L2	8	7	TRKRASA	20205
HPV56	L2	11	7	TRKRASATQL	20206
HPV56	L2	9	202	VHSGGTEPI	20207
HPV56	L2	8	150	VHVSSTHI	20208
HPV56	L2	10	317	VHYYDISPI	20209
HPV56	L2	11	317	VHYYDISPIA	20210
HPV56	L2	8	234	VKVTDPAF	20211
HPV56	L2	9	234	VKVTDP AFL	20212
HPV56	L2	10	294	VRFSRLGRKA	20213
HPV56	L2	8	227	YRKAFOOV	20214
HPV56	L2	10	227	YRKAFOOVKV	20215

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	11	316	AAALYWYKTGI	20216
HPV16	E1	9	239	AAFLGLTPSI	20217
HPV16	E1	10	239	AAFLGLTPSIA	20218
HPV16	E1	10	317	AAALYWYKTGI	20219
HPV16	E1	10	205	AAMLAKFKEL	20220
HPV16	E1	11	205	AAMLAKFKELY	20221
HPV16	E1	8	478	AAANTGKSL	20222
HPV16	E1	9	478	AAANTGKSLF	20223
HPV16	E1	11	478	AAANTGKSLFGM	20224
HPV16	E1	11	389	ASAFKLSNSQA	20225
HPV16	E1	10	406	ATMCRHYKRA	20226
HPV16	E1	8	524	ATVPCWNY	20227
HPV16	E1	9	524	ATVPCWNYI	20228
HPV16	E1	8	405	CATMCRHY	20229
HPV16	E1	11	405	CATMCRHYKRA	20230
HPV16	E1	8	269	CSWGMVVL	20231
HPV16	E1	9	269	CSWGMVVLL	20232
HPV16	E1	10	269	CSWGMVVLLL	20233
HPV16	E1	11	269	CSWGMVVLLLV	20234
HPV16	E1	8	353	CTFELSQM	20235
HPV16	E1	9	353	CTFELSQMV	20236
HPV16	E1	11	353	CTFELSQMVCW	20237
HPV16	E1	10	515	DAKIGMLDDA	20238
HPV16	E1	9	523	DATVPCWNY	20239
HPV16	E1	10	523	DATVPCWNYI	20240
HPV16	E1	10	81	DAVQVLKRY	20241
HPV16	E1	11	81	DAVQVLKRYL	20242
HPV16	E1	8	41	DSDTGEDL	20243
HPV16	E1	9	41	DSDTGEDLV	20244
HPV16	E1	11	41	DSDTGEDLVDF	20245
HPV16	E1	8	372	DSEIAYKY	20246
HPV16	E1	9	372	DSEIAYKYA	20247
HPV16	E1	11	372	DSEIAYKYAQL	20248
HPV16	E1	9	131	DSGYGNTEV	20249
HPV16	E1	10	249	DSIKTLQQY	20250
HPV16	E1	9	633	DSLPTFKCV	20251
HPV16	E1	11	573	DSRWPLYLHRL	20252
HPV16	E1	9	43	DTGEDLVDF	20253
HPV16	E1	10	43	DTGEDLVDFI	20254
HPV16	E1	11	43	DTGEDLVDFIV	20255
HPV16	E1	8	384	DTNSASA	20256
HPV16	E1	9	384	DTNSASAF	20257
HPV16	E1	10	384	DTNSASAFI	20258
HPV16	E1	11	335	DTPEWIRQTV	20259
HPV16	E1	8	75	EAKQHRDA	20260
HPV16	E1	9	75	EAKQHRDAV	20261

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	11	75	EAKQHRDAVQV	20262
HPV16	E1	11	22	EAVVEKKTGDA	20263
HPV16	E1	9	65	ETAHALFTA	20264
HPV16	E1	8	63	ETETAHAL	20265
HPV16	E1	9	63	ETETAHALF	20266
HPV16	E1	11	63	ETETAHALFTA	20267
HPV16	E1	9	152	ETETPCSQY	20268
HPV16	E1	10	288	ETIEKLKSL	20269
HPV16	E1	11	288	ETIEKLKSKLL	20270
HPV16	E1	8	140	ETQQMLQV	20271
HPV16	E1	8	219	FSSELVRPF	20272
HPV16	E1	8	613	FSRTWSRL	20273
HPV16	E1	10	613	FSRTWSRLSL	20274
HPV16	E1	9	586	FTFPNEFP	20275
HPV16	E1	9	477	GAANTGKSL	20276
HPV16	E1	10	477	GAANTGKSLF	20277
HPV16	E1	9	163	GSGGCSQY	20278
HPV16	E1	8	571	GTDSRWPY	20279
HPV16	E1	9	571	GTDSRWPYL	20280
HPV16	E1	8	12	GTGCGWF	20281
HPV16	E1	9	12	GTGCGWFY	20282
HPV16	E1	10	12	GTGCGWFYV	20283
HPV16	E1	9	68	HALFTAQEA	20284
HPV16	E1	8	348	HSFNDCTF	20285
HPV16	E1	10	348	HSFNDCTFEL	20286
HPV16	E1	8	184	HTICQTPL	20287
HPV16	E1	11	184	HTICQTPLNI	20288
HPV16	E1	10	238	IAAFGLTPSI	20289
HPV16	E1	11	238	IAAFGLTPSIA	20290
HPV16	E1	8	247	IADSIKTL	20291
HPV16	E1	9	247	IADSIKTL	20292
HPV16	E1	8	375	IAYKYAQL	20293
HPV16	E1	9	375	IAYKYAQLA	20294
HPV16	E1	11	329	ISEVYGDTPFW	20295
HPV16	E1	9	98	ISGCVDDNI	20296
HPV16	E1	8	326	ISNISEVY	20297
HPV16	E1	8	106	ISPRLKAI	20298
HPV16	E1	10	106	ISPRLKAI	20299
HPV16	E1	8	204	KAAMLAKF	20300
HPV16	E1	11	204	KAAMLAKFKEL	20301
HPV16	E1	11	111	KAICIEKQRA	20302
HPV16	E1	8	610	KSFRTW	20303
HPV16	E1	11	610	KSFRTWSRL	20304
HPV16	E1	9	505	KSIIFWLQPL	20305
HPV16	E1	10	505	KSHFWLQPLA	20306
HPV16	E1	8	483	KSLFGMSL	20307

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Type	Protein	No. of Amino. Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	9	483	KSLFGMSLM	20308
HPV16	E1	11	483	KSLFGMSLMKF	20309
HPV16	E1	10	227	KSNKSTCCDW	20310
HPV16	E1	8	394	KSNSQAKI	20311
HPV16	E1	9	394	KSNSQAKIV	20312
HPV16	E1	9	230	KSTCCDWCI	20313
HPV16	E1	10	230	KSTCCDWCI	20314
HPV16	E1	11	230	KSTCCDWCI	20315
HPV16	E1	10	323	KTGISEV	20316
HPV16	E1	11	323	KTGISEV	20317
HPV16	E1	9	252	KTLLQYCL	20318
HPV16	E1	10	252	KTLLQYCL	20319
HPV16	E1	11	252	KTLLQYCL	20320
HPV16	E1	8	199	KTSNAKAA	20321
HPV16	E1	9	199	KTSNAKAAM	20322
HPV16	E1	10	199	KTSNAKAAML	20323
HPV16	E1	11	199	KTSNAKAAML	20324
HPV16	E1	8	267	LACSWG	20325
HPV16	E1	9	267	LACSWG	20326
HPV16	E1	10	267	LACSWG	20327
HPV16	E1	11	267	LACSWG	20328
HPV16	E1	8	513	LADAKIGM	20329
HPV16	E1	9	513	LADAKIGML	20330
HPV16	E1	8	382	LADTNSA	20331
HPV16	E1	10	382	LADTNSA	20332
HPV16	E1	11	382	LADTNSA	20333
HPV16	E1	8	208	LAKFKELY	20334
HPV16	E1	10	208	LAKFKELY	20335
HPV16	E1	8	95	LSDISGCV	20336
HPV16	E1	10	294	LSKLLCVSPM	20337
HPV16	E1	8	357	LSQM	20338
HPV16	E1	9	357	LSQM	20339
HPV16	E1	8	457	LTALKRFL	20340
HPV16	E1	11	457	LTALKRFL	20341
HPV16	E1	8	191	LTNLLNVL	20342
HPV16	E1	9	243	LTPSIADSI	20343
HPV16	E1	9	59	LTQAE	20344
HPV16	E1	11	59	LTQAE	20345
HPV16	E1	10	454	MSFLTALKRFL	20346
HPV16	E1	11	454	MSFLTALKRFL	20347
HPV16	E1	11	488	MSLMKFLQGSV	20348
HPV16	E1	9	420	MSMSQWIKY	20349
HPV16	E1	8	569	NAGTDSRW	20350
HPV16	E1	10	569	NAGTDSRW	20351
HPV16	E1	11	569	NAGTDSRW	20352
HPV16	E1	8	202	NAKAAMLA	20353

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	10	202	NAKAAMLAKF	20354
HPV16	E1	8	538	NALDGNLV	20355
HPV16	E1	10	538	NALDGNLVSM	20356
HPV16	E1	8	503	NSKSHFWL	20357
HPV16	E1	11	503	NSKSHFWLQPL	20358
HPV16	E1	8	386	NSNASAFI	20359
HPV16	E1	11	396	NSQAKIVKDC	20360
HPV16	E1	9	136	NTEVETQQM	20361
HPV16	E1	10	136	NTEVETQQML	20362
HPV16	E1	9	480	NTGKSLFGM	20363
HPV16	E1	11	480	NTGKSLFGMSL	20364
HPV16	E1	10	245	PSIADSIKTL	20365
HPV16	E1	11	245	PSIADSIKTL	20366
HPV16	E1	9	61	QAETETAHA	20367
HPV16	E1	10	61	QAETETAHAL	20368
HPV16	E1	11	61	QAETETAHALF	20369
HPV16	E1	9	398	QAKIVKDC	20370
HPV16	E1	11	398	QAKIVKDCATM	20371
HPV16	E1	9	265	QSLACSWG	20372
HPV16	E1	10	265	QSLACSWG	20373
HPV16	E1	11	265	QSLACSWG	20374
HPV16	E1	9	118	QSLACSWG	20375
HPV16	E1	10	118	QSLACSWG	20376
HPV16	E1	8	188	QSLACSWG	20377
HPV16	E1	10	188	QSLACSWG	20378
HPV16	E1	11	188	QSLACSWG	20379
HPV16	E1	8	343	QSLACSWG	20380
HPV16	E1	8	120	QSLACSWG	20381
HPV16	E1	9	414	QSLACSWG	20382
HPV16	E1	8	313	QSLACSWG	20383
HPV16	E1	9	313	QSLACSWG	20384
HPV16	E1	10	313	QSLACSWG	20385
HPV16	E1	8	615	QSLACSWG	20386
HPV16	E1	10	390	QSLACSWG	20387
HPV16	E1	9	172	QSLACSWG	20388
HPV16	E1	8	314	QSLACSWG	20389
HPV16	E1	9	314	QSLACSWG	20390
HPV16	E1	8	231	QSLACSWG	20391
HPV16	E1	9	231	QSLACSWG	20392
HPV16	E1	10	231	QSLACSWG	20393
HPV16	E1	11	231	QSLACSWG	20394
HPV16	E1	8	315	QSLACSWG	20395
HPV16	E1	8	66	QSLACSWG	20396
HPV16	E1	11	66	QSLACSWG	20397
HPV16	E1	10	458	QSLACSWG	20398
HPV16	E1	11	72	QSLACSWG	20399

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	8	200	TSNAKAAM	20400
HPV16	E1	9	200	TSNAKAAML	20401
HPV16	E1	10	200	TSNAKAAMLA	20402
HPV16	E1	10	217	VSESELRPF	20403
HPV16	E1	9	641	VSGQNTNTL	20404
HPV16	E1	10	545	VSMDEVKRP	20405
HPV16	E1	11	545	VSMDEVKRPV	20406
HPV16	E1	11	92	VSPLSDISGCV	20407
HPV16	E1	8	300	VSPMCMMI	20408
HPV16	E1	8	363	WAYDNDIV	20409
HPV16	E1	11	379	YAQLADTNSNA	20410
HPV16	E1	10	171	YSSGSGGEGV	20411
HPV16	E2	8	220	AATHTKAV	20412
HPV16	E2	9	220	AATHTKAVA	20413
HPV16	E2	10	220	AATHTKAVAL	20414
HPV16	E2	10	143	ASVTVVEGV	20415
HPV16	E2	8	221	ATHTKAVA	20416
HPV16	E2	9	221	ATHTKAVAL	20417
HPV16	E2	10	40	CAIYYKAREM	20418
HPV16	E2	11	309	CTLYTAVSSTW	20419
HPV16	E2	10	174	DAEKYSKNKV	20420
HPV16	E2	11	174	DAEKYSKNKVW	20421
HPV16	E2	8	294	DANTLKCL	20422
HPV16	E2	10	294	DANTLKCLRY	20423
HPV16	E2	8	263	DSAPILTA	20424
HPV16	E2	9	263	DSAPILTAF	20425
HPV16	E2	9	338	DSEWQRDQF	20426
HPV16	E2	10	338	DSEWQRDQFL	20427
HPV16	E2	9	22	DSTDRLRDHII	20428
HPV16	E2	11	22	DSTDRLRDHIDY	20429
HPV16	E2	8	260	DSVDSAPI	20430
HPV16	E2	9	260	DSVDSAPIL	20431
HPV16	E2	11	260	DSVDSAPILTA	20432
HPV16	E2	11	246	DTGNPCHTTKL	20433
HPV16	E2	11	142	EASVTVVEGV	20434
HPV16	E2	8	80	ETIYNSQY	20435
HPV16	E2	9	2	ETLCQRLNV	20436
HPV16	E2	11	200	FSSNEVSSPEI	20437
HPV16	E2	9	230	GTEETQTTI	20438
HPV16	E2	8	187	HAGGQVIL	20439
HPV16	E2	11	252	HTTKLHRDSV	20440
HPV16	E2	8	356	ITVSTGFM	20441
HPV16	E2	10	356	ITVSTGFMSI	20442
HPV16	E2	8	68	KALQAIEL	20443
HPV16	E2	10	68	KALQAIELQL	20444
HPV16	E2	10	45	KAREMGFKIII	20445

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	9	329	KSAIVTLTY	20446
HPV16	E2	9	354	KTIVSTGF	20447
HPV16	E2	10	354	KTIVSTGFM	20448
HPV16	E2	8	62	LAVSKNKA	20449
HPV16	E2	9	62	LAVSKNKAL	20450
HPV16	E2	11	62	LAVSKNKALQA	20451
HPV16	E2	10	347	LSQVKIPKTI	20452
HPV16	E2	8	103	LTAPTGCI	20453
HPV16	E2	11	16	LTHYENDSTDL	20454
HPV16	E2	11	77	LLETIYNSQY	20455
HPV16	E2	8	282	NSNTTPIV	20456
HPV16	E2	10	282	NSNTTPIVHL	20457
HPV16	E2	9	84	NSQYSNEKW	20458
HPV16	E2	11	84	NSQYSNEKWTL	20459
HPV16	E2	8	272	NSSHKGRI	20460
HPV16	E2	8	296	NLTKCLRY	20461
HPV16	E2	10	296	NLTKCLRYRF	20462
HPV16	E2	8	127	NTMHTNWN	20463
HPV16	E2	11	127	NTMHTNWNTHI	20464
HPV16	E2	8	284	NTTPIVHL	20465
HPV16	E2	8	219	PAATHTKA	20466
HPV16	E2	9	219	PAATHTKAV	20467
HPV16	E2	10	219	PAATHTKAVA	20468
HPV16	E2	11	219	PAATHTKAVAL	20469
HPV16	E2	10	106	PTGCIKKHGY	20470
HPV16	E2	10	60	PTLAVSKNKA	20471
HPV16	E2	11	60	PTLAVSKNKAL	20472
HPV16	E2	10	196	PTSVFSSNEV	20473
HPV16	E2	9	71	QAIQLTL	20474
HPV16	E2	11	165	RTYFVQFKDDA	20475
HPV16	E2	8	330	SAIVTLTY	20476
HPV16	E2	8	264	SAPILTAF	20477
HPV16	E2	10	201	SSNEVSSPEI	20478
HPV16	E2	11	201	SSNEVSSPEII	20479
HPV16	E2	10	206	SSPEIIRQHL	20480
HPV16	E2	11	206	SSPEIIRQHILA	20481
HPV16	E2	11	316	SSTWHWTGHN	20482
HPV16	E2	8	23	STDLRDHI	20483
HPV16	E2	10	23	STDLRDHIIDY	20484
HPV16	E2	11	23	STDLRDHIIDYW	20485
HPV16	E2	10	317	STWHWTGHN	20486
HPV16	E2	11	269	TAFNSSHKGRI	20487
HPV16	E2	9	313	TAVSSTWHW	20488
HPV16	E2	9	197	TSVFSSNEV	20489
HPV16	E2	10	253	TTKLLIIRDSV	20490
HPV16	E2	11	285	TTPIVHLKGD	20491

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	9	64	VSKNKALQA	20492
HPV16	E2	10	64	VSKNKALQAI	20493
HPV16	E2	9	97	VSLEVYLT	20494
HPV16	E2	11	205	VSSPEIRQHL	20495
HPV16	E2	8	358	VSTGFMSI	20496
HPV16	E2	9	333	VTLYDSEW	20497
HPV16	E2	8	145	VTVEGVQV	20498
HPV16	E2	10	145	VTVEGVQVDY	20499
HPV16	E2	11	145	VTVEGVQVDYY	20500
HPV16	E2	11	321	WTGHNVKHSA	20501
HPV16	E2	10	134	WTHIYICEA	20502
HPV16	E2	8	92	WTLQDVSL	20503
HPV16	E2	10	92	WTLQDVSLV	20504
HPV16	E2	11	92	WTLQDVSLVY	20505
HPV16	E2	9	178	YSKNKVWEV	20506
HPV16	E2	11	178	YSKNKVWEVHA	20507
HPV16	E2	8	87	YSNEKWTL	20508
HPV16	E2	11	87	YSNEKWTLQDV	20509
HPV16	E2	8	312	YTAVSSTW	20510
HPV16	E2	10	312	YTAVSSTWHW	20511
HPV16	E2	8	131	YTNWTHY	20512
HPV16	E2	9	131	YTNWTHIYI	20513
HPV16	E2	11	115	YTVVQVQFDGI	20514
HPV16	E5	8	53	AASAFRCF	20515
HPV16	E5	9	53	AASAFRCFI	20516
HPV16	E5	10	53	AASAFRCFIV	20517
HPV16	E5	11	53	AASAFRCFIVY	20518
HPV16	E5	8	54	ASAFRCFI	20519
HPV16	E5	9	54	ASAFRCFIV	20520
HPV16	E5	10	54	ASAFRCFIVY	20521
HPV16	E5	11	54	ASAFRCFIVYI	20522
HPV16	E5	9	7	ASTLLACF	20523
HPV16	E5	10	7	ASTLLACFL	20524
HPV16	E5	11	7	ASTLLACFLL	20525
HPV16	E5	8	5	DTASTILL	20526
HPV16	E5	9	5	DTASTILLA	20527
HPV16	E5	11	5	DTASTILLACF	20528
HPV16	E5	8	75	HTHARFLI	20529
HPV16	E5	10	51	ITAASAFRCF	20530
HPV16	E5	11	51	ITAASAFRCFI	20531
HPV16	E5	8	12	LACFLLCF	20532
HPV16	E5	10	12	LACFLLCFCV	20533
HPV16	E5	11	12	LACFLLCFCVL	20534
HPV16	E5	9	34	LSVSTYTSI	20535
HPV16	E5	10	34	LSVSTYTSLI	20536
HPV16	E5	11	34	LSVSTYTSLIH	20537

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E5	11	1	MTNLDTASTTL	20538
HPV16	E5	8	55	SAFRCFIV	20539
HPV16	E5	9	55	SAFRCFIV	20540
HPV16	E5	10	55	SAFRCFIVYI	20541
HPV16	E5	11	55	SAFRCFIVYII	20542
HPV16	E5	8	8	STLLACF	20543
HPV16	E5	9	8	STLLACFL	20544
HPV16	E5	10	8	STLLACFLL	20545
HPV16	E5	8	37	STYTSII	20546
HPV16	E5	9	37	STYTSIIL	20547
HPV16	E5	10	37	STYTSIILV	20548
HPV16	E5	11	37	STYTSIILVL	20549
HPV16	E5	9	52	TAASAFRCF	20550
HPV16	E5	10	52	TAASAFRCFI	20551
HPV16	E5	11	52	TAASAFRCFIV	20552
HPV16	E5	8	6	TASTTLLA	20553
HPV16	E5	10	6	TASTTLLACF	20554
HPV16	E5	11	6	TASTTLLACFL	20555
HPV16	E5	8	40	TSLIILVL	20556
HPV16	E5	9	40	TSLIILVLL	20557
HPV16	E5	10	40	TSLIILVLLL	20558
HPV16	E5	11	40	TSLIILVLLW	20559
HPV16	E5	8	9	TLLACFL	20560
HPV16	E5	9	9	TLLACFLL	20561
HPV16	E5	11	9	TLLACFLLCF	20562
HPV16	E5	8	36	VSTYTSI	20563
HPV16	E5	9	36	VSTYTSII	20564
HPV16	E5	10	36	VSTYTSIIL	20565
HPV16	E5	11	36	VSTYTSIILV	20566
HPV16	E5	8	39	YTSIILV	20567
HPV16	E5	9	39	YTSIILVL	20568
HPV16	E5	10	39	YTSIILVLL	20569
HPV16	E5	11	39	YTSIILVLLL	20570
HPV16	E6	8	23	CTELQTTI	20571
HPV16	E6	11	23	CTELQTTIHI	20572
HPV16	E6	8	52	FAFRLCI	20573
HPV16	E6	9	52	FAFRLCIV	20574
HPV16	E6	10	52	FAFRLCIVY	20575
HPV16	E6	8	92	GTTLEQQY	20576
HPV16	E6	9	80	ISEYRHYCY	20577
HPV16	E6	11	80	ISEYRHYCYSL	20578
HPV16	E6	8	27	QTTIHDI	20579
HPV16	E6	9	27	QTTIHDIIL	20580
HPV16	E6	11	148	RSSRTRRETQL	20581
HPV16	E6	8	151	RTRRETQL	20582
HPV16	E6	10	149	SSRTRRETQL	20583

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E6	8	28	TTIHDIIL	20584
HPV16	E6	11	28	TTIHDIILECV	20585
HPV16	E6	11	93	TTLEQQYNKPL	20586
HPV16	E6	8	67	YAVCDKCL	20587
HPV16	E6	10	67	YAVCDKCLKF	20588
HPV16	E6	11	67	YAVCDKCLKFY	20589
HPV16	E6	10	77	YSKISEYRHY	20590
HPV16	E6	8	88	YSLYGTTL	20591
HPV16	E7	9	30	DSSEEEDEI	20592
HPV16	E7	8	62	DSTLRVCV	20593
HPV16	E7	8	4	DTPTLHEY	20594
HPV16	E7	9	4	DTPTLHEYM	20595
HPV16	E7	10	4	DTPTLHEYML	20596
HPV16	E7	8	18	ETDLYCY	20597
HPV16	E7	11	18	ETDLYCYEQL	20598
HPV16	E7	9	85	GTLGIVCPI	20599
HPV16	E7	10	41	PAGQAEPDRA	20600
HPV16	E7	8	6	PTLHEYML	20601
HPV16	E7	10	6	PTLHEYMLDL	20602
HPV16	E7	9	44	QAEPDRAHY	20603
HPV16	E7	11	44	QAEPDRAHYNI	20604
HPV16	E7	10	70	QSTHVDIRTL	20605
HPV16	E7	9	49	RAHYNIVTF	20606
HPV16	E7	8	77	RTLEDLLM	20607
HPV16	E7	11	77	RTLEDLLMGTL	20608
HPV16	E7	8	31	SSEEEDEI	20609
HPV16	E7	9	71	STHVDIRTL	20610
HPV16	E7	10	19	TTDLYCYEQL	20611
HPV16	E7	11	55	VTFCCKCDSTL	20612
HPV16	E7	10	372	AAISTSETTY	20613
HPV16	L1	8	158	ASAYAANA	20614
HPV16	L1	10	158	ASAYAANAGV	20615
HPV16	L1	8	35	ATVYLPPV	20616
HPV16	L1	10	35	ATVYLPPVPV	20617
HPV16	L1	11	371	CAAISTSETTY	20618
HPV16	L1	10	251	CTSICKYPDY	20619
HPV16	L1	11	251	CTSICKYPDYI	20620
HPV16	L1	9	329	DAQIFNKPY	20621
HPV16	L1	10	329	DAQIFNKPYW	20622
HPV16	L1	11	329	DAQIFNKPYWL	20623
HPV16	L1	8	154	DTENASAY	20624
HPV16	L1	9	154	DTENASAYA	20625
HPV16	L1	10	154	DTENASAYAA	20626
HPV16	L1	9	228	DTGFGAMDF	20627
HPV16	L1	8	120	DTQRLVWA	20628
HPV16	L1	10	120	DTQRLVWACV	20629

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	8	361	DTTRSTNM	20630
HPV16	L1	10	361	DTTRSTNMSL	20631
HPV16	L1	10	442	DTYRFVTSQA	20632
HPV16	L1	11	442	DTYRFVTSQAI	20633
HPV16	L1	9	34	EATVYLPPV	20634
HPV16	L1	11	34	EATVYLPPVPV	20635
HPV16	L1	9	378	ETTYKNTF	20636
HPV16	L1	8	481	FSADLDQF	20637
HPV16	L1	10	481	FSADLDQFPL	20638
HPV16	L1	8	506	FTLGKRKA	20639
HPV16	L1	11	236	FTTLQANKSEV	20640
HPV16	L1	8	232	GAMDFTTL	20641
HPV16	L1	10	232	GAMDFTTLQA	20642
HPV16	L1	11	291	GAVGENVPDDL	20643
HPV16	L1	8	305	GSGSTANL	20644
HPV16	L1	9	305	GSGSTANLA	20645
HPV16	L1	8	323	GSMVTSDA	20646
HPV16	L1	10	323	GSMVTSDAQI	20647
HPV16	L1	11	323	GSMVTSDAQIF	20648
HPV16	L1	8	198	GSPCTNVA	20649
HPV16	L1	9	198	GSPCTNVAV	20650
HPV16	L1	11	307	GSTANLASSNY	20651
HPV16	L1	9	438	GTLEDTYRF	20652
HPV16	L1	10	438	GTLEDTYRFV	20653
HPV16	L1	8	64	GTSRLAV	20654
HPV16	L1	8	62	HAGTSRL	20655
HPV16	L1	9	62	HAGTSRLLA	20656
HPV16	L1	10	62	HAGTSRLLA	20657
HPV16	L1	8	418	HSMNSTIL	20658
HPV16	L1	11	418	HSMNSTILEDW	20659
HPV16	L1	11	457	HTPPAPKEDPL	20660
HPV16	L1	10	452	IACQKHTPPA	20661
HPV16	L1	10	143	ISGHIPLNKL	20662
HPV16	L1	10	173	ISMDYKQTQL	20663
HPV16	L1	8	374	ISTSETTY	20664
HPV16	L1	8	11	ITCYENDV	20665
HPV16	L1	10	11	ITCYENDVNV	20666
HPV16	L1	11	11	ITCYENDVNVY	20667
HPV16	L1	8	407	ITLTADVMT	20668
HPV16	L1	10	407	ITLTADVMTY	20669
HPV16	L1	11	407	ITLTADVMTYI	20670
HPV16	L1	8	501	KAKPKFTL	20671
HPV16	L1	8	243	KSEVPLDI	20672
HPV16	L1	8	69	LAVGHIPIYF	20673
HPV16	L1	10	69	LAVGHIPIYFPI	20674
HPV16	L1	8	409	LTADVMTY	20675

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	9	409	LTADVMTYI	20676
HPV16	L1	9	27	MSLWLPSEA	20677
HPV16	L1	11	27	MSLWLPSEATV	20678
HPV16	L1	11	414	MTYIHSMNSTI	20679
HPV16	L1	10	164	NAGVDNRECI	20680
HPV16	L1	9	157	NASAYAANA	20681
HPV16	L1	11	157	NASAYAANAGV	20682
HPV16	L1	8	421	NSTILEDW	20683
HPV16	L1	10	421	NSTILEDWNF	20684
HPV16	L1	8	383	NTNFKEYL	20685
HPV16	L1	9	218	NTVIQDQDM	20686
HPV16	L1	10	218	NTVIQDQDMV	20687
HPV16	L1	8	460	PAPKEDPL	20688
HPV16	L1	11	460	PAPKEDPLKKY	20689
HPV16	L1	8	32	PSEATVYL	20690
HPV16	L1	11	32	PSEATVYLPV	20691
HPV16	L1	10	321	PSGSMVTSDA	20692
HPV16	L1	8	319	PTPSGSMV	20693
HPV16	L1	10	515	PTTSSTSTA	20694
HPV16	L1	10	497	QAGLKAKPKF	20695
HPV16	L1	9	240	QANKSEVPL	20696
HPV16	L1	11	240	QANKSEVPLDI	20697
HPV16	L1	9	289	RAGAVGENV	20698
HPV16	L1	9	341	RAQGHNNGI	20699
HPV16	L1	11	341	RAQGHNNGICW	20700
HPV16	L1	9	364	RSTNMSLCA	20701
HPV16	L1	10	364	RSTNMSLCAA	20702
HPV16	L1	11	364	RSTNMSLCAAI	20703
HPV16	L1	8	56	RTNIYYHA	20704
HPV16	L1	9	482	SADLDQFPL	20705
HPV16	L1	9	159	SAYAANAGV	20706
HPV16	L1	10	308	STANLASSNY	20707
HPV16	L1	11	308	STANLASSNYF	20708
HPV16	L1	11	49	STDEYVARTNI	20709
HPV16	L1	9	422	STILEDWNF	20710
HPV16	L1	11	422	STILEDWNFGL	20711
HPV16	L1	8	365	STNMSLCA	20712
HPV16	L1	10	365	STNMSLCAA	20713
HPV16	L1	11	521	STNMSLCAAI	20714
HPV16	L1	8	410	STTAKRKRKRL	20715
HPV16	L1	11	410	TADVMTYI	20716
HPV16	L1	11	410	TADVMTYIISM	20717
HPV16	L1	9	523	TAKRKRKRL	20718
HPV16	L1	9	309	TANLASSNY	20719
HPV16	L1	10	309	TANLASSNYF	20720
HPV16	L1	11	327	TSDAQIFNKPY	20721

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV16	L1	11	376	TSETTYKNTNF	20722
HPV16	L1	11	114	TSFYNPDTQRL	20723
HPV16	L1	9	252	TSICKYPDY	20724
HPV16	L1	10	252	TSICKYPDYI	20725
HPV16	L1	11	65	TSRLLAVGHPY	20726
HPV16	L1	8	517	TSSTSTTA	20727
HPV16	L1	10	522	TTAKRKKRKL	20728
HPV16	L1	10	237	TTLQANKSEV	20729
HPV16	L1	9	362	TRSTNMSL	20730
HPV16	L1	11	362	TRSTNMSLCA	20731
HPV16	L1	9	516	TTSTSTTA	20732
HPV16	L1	8	379	TTYKNTNF	20733
HPV16	L1	11	379	TTYKNTNFKEY	20734
HPV16	L1	8	54	VARTNIYY	20735
HPV16	L1	10	54	VARTNIYYHA	20736
HPV16	L1	11	204	VAVNPGDCPPL	20737
HPV16	L1	9	264	VSEPYGDSL	20738
HPV16	L1	10	264	VSEPYGDSL F	20739
HPV16	L1	11	264	VSEPYGDSLFF	20740
HPV16	L1	8	91	VSLQYRV	20741
HPV16	L1	9	91	VSLQYRVF	20742
HPV16	L1	11	91	VSLQYRVFRI	20743
HPV16	L1	10	44	VSKVVSTDEY	20744
HPV16	L1	11	44	VSKVVSTDEYV	20745
HPV16	L1	8	48	VSTDEYVA	20746
HPV16	L1	8	3	VTFIVILV	20747
HPV16	L1	9	3	VTFIVILVI	20748
HPV16	L1	8	326	VTSDAQIF	20749
HPV16	L1	8	126	WACVGVGV	20750
HPV16	L1	8	470	YTFWEVNL	20751
HPV16	L2	11	355	AALPTSINNGL	20752
HPV16	L2	8	82	ATDTLAPV	20753
HPV16	L2	11	15	ATQLYKTKCKQA	20754
HPV16	L2	8	116	DAGAPTSV	20755
HPV16	L2	11	116	DAGAPTSVPSI	20756
HPV16	L2	11	442	DAGDFYLHPSY	20757
HPV16	L2	8	334	DSAEIEI	20758
HPV16	L2	11	334	DSAEIEI LQTI	20759
HPV16	L2	10	84	DTLAPVRPPL	20760
HPV16	L2	10	376	DTSTTPVPSV	20761
HPV16	L2	9	140	DTTPAILDI	20762
HPV16	L2	8	176	ETGGHFTL	20763
HPV16	L2	9	111	ETSFIDAGA	20764
HPV16	L2	8	466	FSDVSLAA	20765
HPV16	L2	8	268	FSSNDNSI	20766
HPV16	L2	10	268	FSSNDNSINI	20767

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	11	268	FSSNDNSINIA	20768
HPV16	L2	10	330	FSTIDSAAEI	20769
HPV16	L2	8	181	FTLSSSTI	20770
HPV16	L2	8	321	GAKVHYYY	20771
HPV16	L2	10	321	GAKVHYYYDF	20772
HPV16	L2	9	118	GAPTSVPSI	20773
HPV16	L2	8	404	GAYNIPLV	20774
HPV16	L2	10	63	GSGTGGRTGY	20775
HPV16	L2	11	63	GSGTGGRTGYI	20776
HPV16	L2	10	49	GSMGVFFGGL	20777
HPV16	L2	8	433	GSPQYTHI	20778
HPV16	L2	9	433	GSPQYTHIA	20779
HPV16	L2	11	433	GSPQYTHIADA	20780
HPV16	L2	8	218	GSRPVARL	20781
HPV16	L2	10	218	GSRPVARLGL	20782
HPV16	L2	11	218	GSRPVARLGLY	20783
HPV16	L2	8	26	GTCPPDII	20784
HPV16	L2	11	26	GTCPPDIIPKV	20785
HPV16	L2	8	65	GTGGRTGY	20786
HPV16	L2	9	65	GTGGRTGYI	20787
HPV16	L2	11	65	GTGGRTGYIPL	20788
HPV16	L2	11	76	GTRPPTATDTL	20789
HPV16	L2	8	354	HAALPTSI	20790
HPV16	L2	8	440	IADAGDFY	20791
HPV16	L2	9	440	IADAGDFYL	20792
HPV16	L2	8	41	IADQILQY	20793
HPV16	L2	11	41	IADQILQYGSM	20794
HPV16	L2	8	277	IADPDFL	20795
HPV16	L2	10	277	IADPDFLDI	20796
HPV16	L2	11	277	IADPDFLDIV	20797
HPV16	L2	9	188	ISTHNYEEI	20798
HPV16	L2	11	188	ISTHNYEEIPM	20799
HPV16	L2	8	420	ITDQAPSL	20800
HPV16	L2	9	420	ITDQAPSLI	20801
HPV16	L2	11	420	ITDQAPSLIPI	20802
HPV16	L2	9	374	ITDTSTTPV	20803
HPV16	L2	8	243	ITPTKLI	20804
HPV16	L2	10	243	ITPTKLITY	20805
HPV16	L2	10	135	ITSTDTTPA	20806
HPV16	L2	11	135	ITSTDTTPAI	20807
HPV16	L2	8	250	ITYDNPAY	20808
HPV16	L2	11	250	ITYDNPAYEGI	20809
HPV16	L2	9	318	KSIGAKVIHY	20810
HPV16	L2	10	318	KSIGAKVIHY	20811
HPV16	L2	11	318	KSIGAKVIHY	20812
HPV16	L2	8	39	KTIADQIL	20813

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	10	39	KTIADQILQY	20814
HPV16	L2	8	86	LAPVRPPL	20815
HPV16	L2	10	86	LAPVRPPLTV	20816
HPV16	L2	11	390	LSGYIPANTTI	20817
HPV16	L2	11	183	LSSSTISTHNY	20818
HPV16	L2	8	294	LTSRRRTGI	20819
HPV16	L2	10	294	LTSRRRTGIRY	20820
HPV16	L2	11	273	NSINIAPDPDF	20821
HPV16	L2	9	397	NTTIPFGGA	20822
HPV16	L2	10	397	NTTIPFGGAY	20823
HPV16	L2	9	208	NTVTSSTPI	20824
HPV16	L2	8	174	PAETGGHF	20825
HPV16	L2	10	174	PAETGGHFTL	20826
HPV16	L2	10	240	PAFITPTKL	20827
HPV16	L2	11	240	PAFITPTKLI	20828
HPV16	L2	10	143	PALDINNTV	20829
HPV16	L2	10	292	PALTSRRRTGI	20830
HPV16	L2	8	395	PANITIPF	20831
HPV16	L2	11	395	PANTTIPFGGA	20832
HPV16	L2	8	255	PAYEGIDV	20833
HPV16	L2	9	100	PSDPSIVSL	20834
HPV16	L2	10	100	PSDPSIVSLV	20835
HPV16	L2	10	124	PSIPPDVSGF	20836
HPV16	L2	8	386	PSTSLSGY	20837
HPV16	L2	9	386	PSTSLSGYI	20838
HPV16	L2	11	386	PSTSLSGYIPA	20839
HPV16	L2	10	346	PSTYTTTSHA	20840
HPV16	L2	11	346	PSTYTTTSHAA	20841
HPV16	L2	10	166	PSVLQPPTPA	20842
HPV16	L2	8	383	PSVPSTSL	20843
HPV16	L2	11	383	PSVPSTSLSGY	20844
HPV16	L2	8	80	PTATDTLA	20845
HPV16	L2	10	80	PTATDTLAPV	20846
HPV16	L2	8	161	PTFTDPSV	20847
HPV16	L2	9	161	PTFTDPSVL	20848
HPV16	L2	11	246	PTKLITYDNPA	20849
HPV16	L2	10	172	PTPAETGGHF	20850
HPV16	L2	8	358	PTSINNGLI	20851
HPV16	L2	9	358	PTSINNGLY	20852
HPV16	L2	11	358	PTSINNGLYDI	20853
HPV16	L2	11	120	PTSVPSIPPDV	20854
HPV16	L2	9	24	QAGTCPPDI	20855
HPV16	L2	10	24	QAGTCPPDIH	20856
HPV16	L2	8	423	QAPSLIPI	20857
HPV16	L2	9	423	QAPSLIPIV	20858
HPV16	L2	8	342	QITTPSTY	20859

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	11	310	QTLRTRSGKSI	20860
HPV16	L2	8	12	RASATQLY	20861
HPV16	L2	9	5	RSAKRTKRA	20862
HPV16	L2	11	5	RSAKRTKRASA	20863
HPV16	L2	8	315	RSGKSIGA	20864
HPV16	L2	10	315	RSGKSIGAKV	20865
HPV16	L2	9	298	RTGIRYSRI	20866
HPV16	L2	10	9	RTKRASATQL	20867
HPV16	L2	11	9	RTKRASATQLY	20868
HPV16	L2	8	313	RTRSGKSI	20869
HPV16	L2	10	313	RTRSGKSIGA	20870
HPV16	L2	8	230	RTTQQVKV	20871
HPV16	L2	9	230	RTTQQVKVV	20872
HPV16	L2	10	335	SAEIELQTI	20873
HPV16	L2	8	6	SAKRTKRA	20874
HPV16	L2	10	6	SAKRTKRASA	20875
HPV16	L2	9	269	SSNDNSINI	20876
HPV16	L2	10	269	SSNDNSINIA	20877
HPV16	L2	10	184	SSSTISTHNY	20878
HPV16	L2	9	185	SSSTISTHNY	20879
HPV16	L2	11	212	SSTPIGSRPV	20880
HPV16	L2	8	138	STDITPAI	20881
HPV16	L2	9	138	STDITTPAIL	20882
HPV16	L2	11	138	STDITTPALDI	20883
HPV16	L2	8	189	STHNYEEI	20884
HPV16	L2	10	189	STHNYEEIPM	20885
HPV16	L2	9	331	STDSAEI	20886
HPV16	L2	11	331	STDSAEIEHL	20887
HPV16	L2	8	186	STISTHNY	20888
HPV16	L2	11	186	STISTHNYEEI	20889
HPV16	L2	10	213	STPIGSRPV	20890
HPV16	L2	11	213	STPIGSRPVA	20891
HPV16	L2	8	387	STSLSGYI	20892
HPV16	L2	10	387	STSLSGYIPA	20893
HPV16	L2	8	378	STTPVPSV	20894
HPV16	L2	9	347	STYTTTSHA	20895
HPV16	L2	10	347	STYTTTSHAA	20896
HPV16	L2	11	347	STYTTTSHAAL	20897
HPV16	L2	9	81	TATDTLAPV	20898
HPV16	L2	8	112	TSFIDAGA	20899
HPV16	L2	10	352	TSHAALPTSI	20900
HPV16	L2	8	359	TSINNGLY	20901
HPV16	L2	10	359	TSINNGLYDI	20902
HPV16	L2	11	359	TSINNGLYDIY	20903
HPV16	L2	9	388	TSLSGYIPA	20904
HPV16	L2	9	295	TSRRTGIRY	20905

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	8	137	TSTDTPA	20906
HPV16	L2	9	137	TSTDTPAI	20907
HPV16	L2	10	137	TSTDTPAIL	20908
HPV16	L2	9	377	TSTTPVPSV	20909
HPV16	L2	10	121	TSVPSIPDV	20910
HPV16	L2	8	156	TTNNPTF	20911
HPV16	L2	8	398	TTIPFGGA	20912
HPV16	L2	9	398	TTIPFGGAY	20913
HPV16	L2	11	398	TTIPFGGAYNI	20914
HPV16	L2	8	141	TPAILDI	20915
HPV16	L2	9	244	TTPTKLITY	20916
HPV16	L2	8	231	TTQQVKV	20917
HPV16	L2	11	231	TTQQVKVVDPA	20918
HPV16	L2	11	351	TTSHAALPTSI	20919
HPV16	L2	9	136	TTSTDTPA	20920
HPV16	L2	10	136	TTSTDTPAI	20921
HPV16	L2	11	136	TTSTDTPAIL	20922
HPV16	L2	8	350	TTTSHAAL	20923
HPV16	L2	11	153	TTVTNNPTF	20924
HPV16	L2	8	287	VALHRPAL	20925
HPV16	L2	8	411	VSGPDIP	20926
HPV16	L2	10	411	VSGPDIPNI	20927
HPV16	L2	9	106	VSLVEETSF	20928
HPV16	L2	10	106	VSLVEETSFI	20929
HPV16	L2	8	203	VSTNPNTV	20930
HPV16	L2	9	155	VTNNPTF	20931
HPV16	L2	10	303	YSRIGNKQTL	20932
HPV16	L2	8	228	YSRTTQV	20933
HPV16	L2	10	228	YSRTTQQKV	20934
HPV16	L2	11	228	YSRTTQQKV	20935
HPV16	L2	10	437	YTIADAGDF	20936
HPV16	L2	11	437	YTIADAGDFY	20937
HPV16	L2	8	349	YTTTSHAA	20938
HPV16	L2	9	349	YTTTSHAAL	20939
HPV18	E1	11	396	AAAFKSNCOA	20940
HPV18	E1	10	397	AAFLKSNCOA	20941
HPV18	E1	10	324	AALYWYRTGI	20942
HPV18	E1	8	40	ATDTGSDM	20943
HPV18	E1	9	40	ATDTGSDMV	20944
HPV18	E1	11	40	ATDTGSDMVD	20945
HPV18	E1	10	413	ATMCKHYRRA	20946
HPV18	E1	8	531	ATTTCWTY	20947
HPV18	E1	9	531	ATTTCWTYF	20948
HPV18	E1	8	412	CATMCKHY	20949
HPV18	E1	11	412	CATMCKIYRRA	20950
HPV18	E1	9	139	CSEVEATQI	20951

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	11	139	CSEVEATQIQV	20952
HPV18	E1	8	160	CSGGSTEAI	20953
HPV18	E1	9	160	CSGGSTEAI	20954
HPV18	E1	10	437	CSKIDEGGDW	20955
HPV18	E1	8	240	CTDWVTAI	20956
HPV18	E1	9	240	CTDWVTAIF	20957
HPV18	E1	11	240	CTDWVTAIFGV	20958
HPV18	E1	9	196	CTIAQLKDL	20959
HPV18	E1	10	196	CTIAQLKDLL	20960
HPV18	E1	9	635	DADTEGNPF	20961
HPV18	E1	8	78	DAQVLHVL	20962
HPV18	E1	9	530	DATTCWTY	20963
HPV18	E1	10	530	DATTCWTYF	20964
HPV18	E1	9	134	DSGYGCSEV	20965
HPV18	E1	11	134	DSGYGCSEVA	20966
HPV18	E1	9	359	DSNFDLSEM	20967
HPV18	E1	10	359	DSNFDLSEMV	20968
HPV18	E1	8	391	DSNSNAAA	20969
HPV18	E1	9	391	DSNSNAAAF	20970
HPV18	E1	10	391	DSNSNAAAF	20971
HPV18	E1	10	637	DTEGNPF	20972
HPV18	E1	8	106	DTELSPL	20973
HPV18	E1	11	106	DTELSPLQEI	20974
HPV18	E1	9	42	DTGSDMVDI	20975
HPV18	E1	10	42	DTGSDMVDI	20976
HPV18	E1	10	522	DTKVAMLDDA	20977
HPV18	E1	9	342	DTPEWIQL	20978
HPV18	E1	11	342	DTPEWIQLTI	20979
HPV18	E1	10	52	DTQGTCEQA	20980
HPV18	E1	10	220	DTYGLSFTDL	20981
HPV18	E1	11	220	DTYGLSFTDLV	20982
HPV18	E1	8	540	DTYMRNAL	20983
HPV18	E1	8	379	ESDMAFEY	20984
HPV18	E1	9	379	ESDMAFEYA	20985
HPV18	E1	10	379	ESDMAFEYAL	20986
HPV18	E1	11	379	ESDMAFEYALL	20987
HPV18	E1	9	587	ESRITVFEF	20988
HPV18	E1	9	64	ETAQALFHA	20989
HPV18	E1	11	309	ETCMLIQPKL	20990
HPV18	E1	11	89	FAGGSTENSPL	20991
HPV18	E1	8	226	FTDLVRNF	20992
HPV18	E1	130	130	FTISDSGY	20993
HPV18	E1	11	212	GAMLAVF	20994
HPV18	E1	8	44	GSDMVDI	20995
HPV18	E1	8	92	GSTENSPL	20996
HPV18	E1	9	172	GTEGNSSV	20997

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	9	55	GTFCQAEI	20998
HPV18	E1	8	11	GTGCNGWF	20999
HPV18	E1	9	11	GTGCNGWFY	21000
HPV18	E1	10	11	GTGCNGWFYV	21001
HPV18	E1	8	473	GTPKKNCL	21002
HPV18	E1	9	473	GTPKKNCLV	21003
HPV18	E1	10	473	GTPKKNCLVF	21004
HPV18	E1	8	182	GTSDNSNI	21005
HPV18	E1	11	182	GTSDNSNIENV	21006
HPV18	E1	9	71	HAQEVHINDA	21007
HPV18	E1	11	71	HAQEVHINDAQV	21008
HPV18	E1	8	254	IAEGFKTL	21009
HPV18	E1	9	254	IAEGFKTLI	21010
HPV18	E1	8	198	IAQLKDLL	21011
HPV18	E1	10	198	IAQLKDLLKV	21012
HPV18	E1	9	32	ISDDEDNA	21013
HPV18	E1	11	132	ISDSGYGCSEV	21014
HPV18	E1	11	336	ISEVMGDTPEW	21015
HPV18	E1	10	506	ISFVNSTSHF	21016
HPV18	E1	11	506	ISFVNSTSHFW	21017
HPV18	E1	10	552	ISIDRKHKPL	21018
HPV18	E1	11	552	ISIDRKHKPLI	21019
HPV18	E1	10	116	ISLNSGQKKA	21020
HPV18	E1	8	333	ISNISEVM	21021
HPV18	E1	10	461	ITFLGALKSF	21022
HPV18	E1	11	461	ITFLGALKSFL	21023
HPV18	E1	9	590	ITVFEFPNA	21024
HPV18	E1	10	590	ITVFEFPNAF	21025
HPV18	E1	9	124	KAKRRFLT	21026
HPV18	E1	10	234	KSDKTTCTDW	21027
HPV18	E1	11	234	KSDKTTCTDWV	21028
HPV18	E1	8	401	KSNCQAKY	21029
HPV18	E1	9	401	KSNCQAKYL	21030
HPV18	E1	10	292	KSRLTVAKGL	21031
HPV18	E1	8	490	KSYPFGMSF	21032
HPV18	E1	9	490	KSYPFGMSFI	21033
HPV18	E1	11	490	KSYPFGMSFIHF	21034
HPV18	E1	8	259	KTLIQPFI	21035
HPV18	E1	9	259	KTLIQPFIL	21036
HPV18	E1	10	259	KTLIQPFILY	21037
HPV18	E1	11	259	KTLIQPFILYA	21038
HPV18	E1	8	237	KTTCTDWV	21039
HPV18	E1	10	237	KTTCTDWVTA	21040
HPV18	E1	11	237	KTTCTDWVTAI	21041
HPV18	E1	8	389	LADSNNA	21042
HPV18	E1	9	389	LADSNNAA	21043

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	10	389	LADSNAAAA	21044
HPV18	E1	11	389	LADSNAAAAF	21045
HPV18	E1	8	215	LAVFKDTY	21046
HPV18	E1	10	215	LAVFKDTYGL	21047
HPV18	E1	8	364	LSEMVQWA	21048
HPV18	E1	9	364	LSEMVQWAF	21049
HPV18	E1	10	224	LSFTDLVRNF	21050
HPV18	E1	8	109	LSPRLQEI	21051
HPV18	E1	10	109	LSPRLQEISL	21052
HPV18	E1	8	376	LTDES DMA	21053
HPV18	E1	9	376	LTDES DMAF	21054
HPV18	E1	11	376	LTDES DMAFEY	21055
HPV18	E1	8	520	LTDTKVAM	21056
HPV18	E1	9	520	LTDTKVAML	21057
HPV18	E1	8	350	LTIIQIGI	21058
HPV18	E1	8	571	LTNIHPA	21059
HPV18	E1	10	295	LTVAKGLSTL	21060
HPV18	E1	11	295	LTVAKGLSTLL	21061
HPV18	E1	8	382	MAFEYALL	21062
HPV18	E1	9	382	MAFEYALLA	21063
HPV18	E1	10	495	MSFIHQGA	21064
HPV18	E1	11	495	MSFIHQGAV	21065
HPV18	E1	8	545	NALDGNPI	21066
HPV18	E1	10	545	NALDGNPIS	21067
HPV18	E1	9	39	NATDTGSDM	21068
HPV18	E1	10	39	NATDTGSDMV	21069
HPV18	E1	11	119	NSGQKKAKRRL	21070
HPV18	E1	8	393	NSNAAAFL	21071
HPV18	E1	8	96	NSPLGERL	21072
HPV18	E1	10	96	NSPLGERLEV	21073
HPV18	E1	8	510	NSTSHFWL	21074
HPV18	E1	11	510	NSTSHFWLEPL	21075
HPV18	E1	9	487	NTGKSYFGM	21076
HPV18	E1	11	487	NTGKSYFGMSF	21077
HPV18	E1	9	577	PAKDNRPYP	21078
HPV18	E1	10	577	PAKDNRPYPL	21079
HPV18	E1	8	485	PANTGKSY	21080
HPV18	E1	9	485	PANTGKSYF	21081
HPV18	E1	11	485	PANTGKSYFGM	21082
HPV18	E1	10	252	PTIAEGFKTL	21083
HPV18	E1	11	252	PTIAEGFKTLI	21084
HPV18	E1	9	60	QAELETAQA	21085
HPV18	E1	10	60	QAELETAQAL	21086
HPV18	E1	11	60	QAELETAQALF	21087
HPV18	E1	11	21	QAIVDKKTDGV	21088
HPV18	E1	9	405	QAKYLLKDC	21089

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	11	405	QAKYLKDCATM	21090
HPV18	E1	9	67	QALFHAQEV	21091
HPV18	E1	9	649	RAGQNIHRPL	21092
HPV18	E1	9	421	RAQKRQMNMM	21093
HPV18	E1	8	320	RSSVAALY	21094
HPV18	E1	9	320	RSSVAALYW	21095
HPV18	E1	10	320	RSSVAALYWY	21096
HPV18	E1	10	330	RTGISNISEV	21097
HPV18	E1	11	330	RTGISNISEVM	21098
HPV18	E1	8	622	RTWSRLDL	21099
HPV18	E1	8	321	SSVAALYW	21100
HPV18	E1	9	321	SSVAALYWY	21101
HPV18	E1	11	93	STENSPLGERL	21102
HPV18	E1	11	302	STLLHVPETCM	21103
HPV18	E1	10	511	STSHFWLEPL	21104
HPV18	E1	10	245	TAIFGVNPTI	21105
HPV18	E1	11	245	TAIFGVNPTIA	21106
HPV18	E1	8	65	TAQALFHA	21107
HPV18	E1	11	65	TAQALFHAQEV	21108
HPV18	E1	10	183	TSDNSNIENV	21109
HPV18	E1	9	512	TSHFWLEPL	21110
HPV18	E1	9	238	TTCTDWWTA	21111
HPV18	E1	10	238	TTCTDWWTAI	21112
HPV18	E1	11	238	TTCTDWWTAIF	21113
HPV18	E1	10	533	TTCWTYFDY	21114
HPV18	E1	11	533	TTCWTYFDYM	21115
HPV18	E1	10	150	TTNGEHGGNV	21116
HPV18	E1	8	532	TTTCWTYF	21117
HPV18	E1	11	532	TTTCWTYFDY	21118
HPV18	E1	11	323	VAALYWYRTGI	21119
HPV18	E1	8	297	VAKGLSTL	21120
HPV18	E1	9	297	VAKGLSTLL	21121
HPV18	E1	11	297	VAKGLSTLLHV	21122
HPV18	E1	11	244	VTAIFGVNPTI	21123
HPV18	E1	11	149	VTTNGEHGGNV	21124
HPV18	E1	8	536	WTFYFDYM	21125
HPV18	E1	11	536	WTFYFDYMRNA	21126
HPV18	E1	11	268	YAHQCLDCKW	21127
HPV18	E1	11	386	YALLADSNNA	21128
HPV18	E2	10	49	AAREHGIQTL	21129
HPV18	E2	10	245	AATRPGHICGL	21130
HPV18	E2	11	245	AATRPGHICGLA	21131
HPV18	E2	9	154	ATCVSHRGL	21132
HPV18	E2	10	154	ATCVSHRGLY	21133
HPV18	E2	11	154	ATCVSHRGLYY	21134
HPV18	E2	8	214	ATQLVKQL	21135

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	9	246	ATRPGHGCL	21136
HPV18	E2	10	246	ATRPGHCGLA	21137
HPV18	E2	8	282	CSGNTTPI	21138
HPV18	E2	9	282	CSGNTTPII	21139
HPV18	E2	11	282	CSGNTTPIIHL	21140
HPV18	E2	8	205	CSTSDDTV	21141
HPV18	E2	10	205	CSTSDDTVSA	21142
HPV18	E2	9	146	DAGTWDKTA	21143
HPV18	E2	9	26	DSKDIDSQI	21144
HPV18	E2	11	26	DSKDIDSQIY	21145
HPV18	E2	11	202	DSMCSTDDTV	21146
HPV18	E2	9	31	DSQIYWQL	21147
HPV18	E2	10	31	DSQIYWQLI	21148
HPV18	E2	9	354	DSVQILVGY	21149
HPV18	E2	10	354	DSVQILVGYM	21150
HPV18	E2	9	139	DSVYYMTDA	21151
HPV18	E2	8	210	DTVSATQL	21152
HPV18	E2	9	210	DTVSATQLV	21153
HPV18	E2	10	6	ETLSERLSCV	21154
HPV18	E2	8	340	ETQRTKFL	21155
HPV18	E2	11	340	ETQRTKFLNTV	21156
HPV18	E2	8	48	FAAREHGI	21157
HPV18	E2	11	48	FAAREHGIQTL	21158
HPV18	E2	9	324	GAGNEKTI	21159
HPV18	E2	10	324	GAGNEKTGIL	21160
HPV18	E2	11	235	GTAKTYGQTS	21161
HPV18	E2	10	148	GTWDKTATCV	21162
HPV18	E2	11	187	GTWEVHFGNNV	21163
HPV18	E2	8	309	HSDHYRDI	21164
HPV18	E2	9	338	HSETQRTKF	21165
HPV18	E2	10	338	HSETQRTKFL	21166
HPV18	E2	10	223	HTSPYSSTV	21167
HPV18	E2	9	68	ISKSKAHKA	21168
HPV18	E2	10	68	ISKSKAHKAI	21169
HPV18	E2	10	316	ISSTWHWTGA	21170
HPV18	E2	8	72	KAHKAIEL	21171
HPV18	E2	10	72	KAHKAIELQM	21172
HPV18	E2	11	72	KAHKAIELQMA	21173
HPV18	E2	8	75	KAEIQMA	21174
HPV18	E2	9	75	KAEIQMAL	21175
HPV18	E2	8	70	KSKAHKAI	21176
HPV18	E2	10	70	KSKAHKAIEL	21177
HPV18	E2	11	152	KTATCVSHRGL	21178
HPV18	E2	9	329	KTGILTVTY	21179
HPV18	E2	8	238	KTYGQTS	21180
HPV18	E2	9	238	KTYGQTSAA	21181

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	10	254	LAEKQHCQPV	21182
HPV18	E2	11	86	LAQSRKTEDW	21183
HPV18	E2	8	12	LSCVQDKI	21184
HPV18	E2	9	12	LSCVQDKII	21185
HPV18	E2	8	8	LSERLSCV	21186
HPV18	E2	11	81	MALQGLAQSRV	21187
HPV18	E2	11	144	MTDAGTWDKTA	21188
HPV18	E2	9	133	MTYVAWDSV	21189
HPV18	E2	10	133	MTYVAWDSVY	21190
HPV18	E2	11	133	MTYVAWDSVYY	21191
HPV18	E2	8	297	NSLKCLRYRL	21192
HPV18	E2	10	297	NSLKCLRYRL	21193
HPV18	E2	8	107	NTEPTHCF	21194
HPV18	E2	9	185	NTGTWEVHF	21195
HPV18	E2	8	285	NTPIHL	21196
HPV18	E2	9	348	NTVAIPDSV	21197
HPV18	E2	11	348	NTVAIPDSVQI	21198
HPV18	E2	10	64	PAYNISKSKA	21199
HPV18	E2	8	225	PSPYSSTV	21200
HPV18	E2	10	225	PSPYSSTVS	21201
HPV18	E2	10	272	PTGNKKRKL	21202
HPV18	E2	9	88	QSRKTEDW	21203
HPV18	E2	11	88	QSRKTEDWTL	21204
HPV18	E2	8	56	QTLNHIQV	21205
HPV18	E2	10	56	QTLNHIQVPA	21206
HPV18	E2	11	56	QTLNHIQVVPAY	21207
HPV18	E2	11	2	QTPKETLSERL	21208
HPV18	E2	8	343	RTKFLNTV	21209
HPV18	E2	9	343	RTKFLNTVA	21210
HPV18	E2	10	343	RTKFLNTVAI	21211
HPV18	E2	11	244	SAATRPGHCGL	21212
HPV18	E2	9	213	SATQLVKQL	21213
HPV18	E2	9	229	SSTVSVGTA	21214
HPV18	E2	9	317	SSTVSVGTA	21215
HPV18	E2	9	206	STSDDTVSA	21216
HPV18	E2	8	230	STVSVGTA	21217
HPV18	E2	11	230	STVSVGTAKTY	21218
HPV18	E2	8	318	STVSVGTA	21219
HPV18	E2	10	236	TAKTYGQTSAA	21220
HPV18	E2	11	236	TAKTYGQTSAA	21221
HPV18	E2	10	153	TATCVSHRGL	21222
HPV18	E2	11	153	TATCVSHRGLY	21223
HPV18	E2	8	207	TSDDTVSA	21224
HPV18	E2	11	207	TSDDTVSATQL	21225
HPV18	E2	9	350	VAIPDSVQI	21226
HPV18	E2	10	350	VAIPDSVQIL	21227

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	11	350	VAIPDSVQILV	21228
HPV18	E2	8	136	VAWDSVYY	21229
HPV18	E2	9	136	VAWDSVYYM	21230
HPV18	E2	10	212	VSATQLVKQL	21231
HPV18	E2	8	157	VSHRGLYY	21232
HPV18	E2	9	157	VSHRGLYYV	21233
HPV18	E2	9	232	VSVGTAKTY	21234
HPV18	E2	11	322	WTGAGNEKTI	21235
HPV18	E2	10	96	WTLQDTCEEL	21236
HPV18	E2	11	96	WTLQDTCEELW	21237
HPV18	E2	10	228	YSSTVSVGTA	21238
HPV18	E5	8	47	ATAFTVYV	21239
HPV18	E5	9	47	ATAFTVYVF	21240
HPV18	E5	11	47	ATAFTVYVFCF	21241
HPV18	E5	8	29	CAYAWVLV	21242
HPV18	E5	9	29	CAYAWVLVF	21243
HPV18	E5	10	29	CAYAWVLVVF	21244
HPV18	E5	11	29	CAYAWVLVVFV	21245
HPV18	E5	8	50	FTVYVFCF	21246
HPV18	E5	9	50	FTVYVFCFL	21247
HPV18	E5	10	50	FTVYVFCFL	21248
HPV18	E5	8	43	ITSPATAF	21249
HPV18	E5	10	43	ITSPATAFTV	21250
HPV18	E5	11	43	ITSPATAFTVY	21251
HPV18	E5	9	2	LSLFLFCF	21252
HPV18	E5	11	2	LSLFLFCFCV	21253
HPV18	E5	8	46	PATAFTVY	21254
HPV18	E5	9	46	PATAFTVYV	21255
HPV18	E5	10	46	PATAFTVYVF	21256
HPV18	E5	8	24	PSVCMCAV	21257
HPV18	E5	9	24	PSVCMCAYA	21258
HPV18	E5	10	24	PSVCMCAYAW	21259
HPV18	E5	11	24	PSVCMCAYAWV	21260
HPV18	E5	8	48	TAFTVYVF	21261
HPV18	E5	10	48	TAFTVYVFCF	21262
HPV18	E5	11	48	TAFTVYVFCFL	21263
HPV18	E5	9	44	TSPATAFTV	21264
HPV18	E5	10	44	TSPATAFTVY	21265
HPV18	E5	11	44	TSPATAFTVYV	21266
HPV18	E5	8	31	YAWVLVVF	21267
HPV18	E5	9	31	YAWVLVVFV	21268
HPV18	E5	10	31	YAWVLVVFVY	21269
HPV18	E5	11	31	YAWVLVVFVYV	21270
HPV18	E6	9	63	AACHKCIDF	21271
HPV18	E6	10	63	AACHKCIDFY	21272
HPV18	E6	8	18	CTELNTSL	21273

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E6	11	18	CTELNTSLQDI	21274
HPV18	E6	8	83	DSVYGDITL	21275
HPV18	E6	11	83	DSVYGDITLEKL	21276
HPV18	E6	11	88	DTLEKLTNTGL	21277
HPV18	E6	8	47	FAFKDLFV	21278
HPV18	E6	9	47	FAFKDLFV	21279
HPV18	E6	10	47	FAFKDLFV	21280
HPV18	E6	8	62	HAACHKCI	21281
HPV18	E6	10	62	HAACHKCIDF	21282
HPV18	E6	11	62	HAACHKCIDFY	21283
HPV18	E6	9	30	ITCVYCKTV	21284
HPV18	E6	10	30	ITCVYCKTVL	21285
HPV18	E6	9	36	KTVLELTV	21286
HPV18	E6	10	36	KTVLELTVF	21287
HPV18	E6	8	41	LTEVFEFA	21288
HPV18	E6	9	41	LTEVFEFAF	21289
HPV18	E6	9	93	LTNTGLYNL	21290
HPV18	E6	10	93	LTNTGLYNLL	21291
HPV18	E6	11	93	LTNTGLYNLLI	21292
HPV18	E6	8	95	NTGLYNLL	21293
HPV18	E6	9	95	NTGLYNLLI	21294
HPV18	E6	9	22	NTSLQDIEI	21295
HPV18	E6	8	114	PAEKLRLH	21296
HPV18	E6	8	7	PTRRPYKPL	21297
HPV18	E6	11	7	PTRRPYKLPDL	21298
HPV18	E6	8	23	TSLQDIEI	21299
HPV18	E6	11	23	TSLQDIEITCV	21300
HPV18	E6	10	81	YSDSVYGDITL	21301
HPV18	E6	10	72	YSRIRLHY	21302
HPV18	E7	8	6	ATLQDIVL	21303
HPV18	E7	10	6	ATLQDIVLHL	21304
HPV18	E7	9	33	DSEENDEI	21305
HPV18	E7	8	69	EARIKLVV	21306
HPV18	E7	9	77	ESSADDLRA	21307
HPV18	E7	10	77	ESSADDLRAF	21308
HPV18	E7	8	5	KATLQDIV	21309
HPV18	E7	9	5	KATLQDIVL	21310
HPV18	E7	11	5	KATLQDIVLHL	21311
HPV18	E7	11	31	LSDSEENDEI	21312
HPV18	E7	9	94	LSFVCPWCA	21313
HPV18	E7	9	92	NLSFVCPW	21314
HPV18	E7	11	92	NLSFVCPWCA	21315
HPV18	E7	9	53	RAEPQRHTM	21316
HPV18	E7	10	53	RAEPQRHTML	21317
HPV18	E7	8	84	RAFQQLFL	21318
HPV18	E7	11	84	RAFQQLFLNTL	21319

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV18	E7	8	79	SADDLRAF	21320
HPV18	E7	11	79	SADDLRAFAQQL	21321
HPV18	E7	8	78	SSADDLRA	21322
HPV18	E7	9	78	SSADDLRAF	21323
HPV18	L1	10	494	AAPAENKDPY	21324
HPV18	L1	10	195	AATSNVSEDV	21325
HPV18	L1	8	345	ASPGSCVY	21326
HPV18	L1	11	407	ASTQSPVPGQY	21327
HPV18	L1	11	419	ATKFKQYSRHV	21328
HPV18	L1	9	196	ATSNVSEDV	21329
HPV18	L1	8	552	ATTSSKPA	21330
HPV18	L1	11	552	ATTSSKPAKRV	21331
HPV18	L1	9	222	CAPAIGEHW	21332
HPV18	L1	10	222	CAPAIGEHWA	21333
HPV18	L1	8	406	CASTQSPV	21334
HPV18	L1	9	441	CTITLTADV	21335
HPV18	L1	10	441	CTITLTADV	21336
HPV18	L1	11	493	DAAPAENKDPY	21337
HPV18	L1	8	418	DATKFKQY	21338
HPV18	L1	9	364	DSQLFNKPY	21339
HPV18	L1	10	364	DSQLFNKPYW	21340
HPV18	L1	11	364	DSQLFNKPYWL	21341
HPV18	L1	8	189	DTESSHAA	21342
HPV18	L1	9	263	DTGYGAMDF	21343
HPV18	L1	8	276	DTKCEVPL	21344
HPV18	L1	10	276	DTKCEVPLDI	21345
HPV18	L1	8	396	DTTPSTNL	21346
HPV18	L1	10	396	DTTPSTNLTI	21347
HPV18	L1	8	330	DTVPQSLY	21348
HPV18	L1	9	330	DTVPQSLYI	21349
HPV18	L1	9	478	DTYRFVQSV	21350
HPV18	L1	10	478	DTYRFVQSV	21351
HPV18	L1	11	478	DTYRFVQSVAI	21352
HPV18	L1	10	191	ESSHAATSNV	21353
HPV18	L1	8	155	ETQRLVWA	21354
HPV18	L1	10	155	ETQRLVWACA	21355
HPV18	L1	9	317	FARHFWNRA	21356
HPV18	L1	8	517	FSLDLQY	21357
HPV18	L1	10	517	FSLDLQYPL	21358
HPV18	L1	11	271	FSTLQDTKCEV	21359
HPV18	L1	8	267	GAMDFSTL	21360
HPV18	L1	10	358	GSIVTSDSQL	21361
HPV18	L1	11	358	GSIVTSDSQLF	21362
HPV18	L1	8	99	GSSRLTY	21363
HPV18	L1	9	233	GTACKSRPL	21364
HPV18	L1	11	326	GTMGDTVPQSL	21365

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	11	194	HAATSNVSEDV	21366
HPV18	L1	8	97	HAGSSRLI	21367
HPV18	L1	10	97	HAGSSRLITV	21368
HPV18	L1	8	30	HSILVYMV	21369
HPV18	L1	10	30	HSILVYMVHI	21370
HPV18	L1	11	30	HSILVYMVHII	21371
HPV18	L1	8	454	HSMNSSIL	21372
HPV18	L1	11	454	HSMNSSILEDW	21373
HPV18	L1	8	488	ITCQKDA	21374
HPV18	L1	10	488	ITCQKDAAPA	21375
HPV18	L1	8	443	ITLTADV	21376
HPV18	L1	10	443	ITLTADVMSY	21377
HPV18	L1	11	443	ITLTADVMSYI	21378
HPV18	L1	9	376	KAQGHNNGV	21379
HPV18	L1	11	376	KAQGHNNGV	21380
HPV18	L1	10	178	LSGHPFYNKL	21381
HPV18	L1	9	241	LSQGDCCPPL	21382
HPV18	L1	11	241	LSQGDCCPLEL	21383
HPV18	L1	8	445	LTADVMSY	21384
HPV18	L1	9	445	LTADVMSYI	21385
HPV18	L1	11	403	LTIKASTQSPV	21386
HPV18	L1	8	104	LTGPNPYF	21387
HPV18	L1	10	104	LTGPNPYFRV	21388
HPV18	L1	11	62	MALWRPSDNTV	21389
HPV18	L1	10	298	MSADPYGDSM	21390
HPV18	L1	11	298	MSADPYGDSMF	21391
HPV18	L1	11	450	MSYIHSMNSSI	21392
HPV18	L1	8	457	NSSILEDW	21393
HPV18	L1	10	457	NSSILEDWNF	21394
HPV18	L1	11	84	NTDDYVPTSI	21395
HPV18	L1	9	253	NTVLEDGDM	21396
HPV18	L1	10	253	NTVLEDGDMV	21397
HPV18	L1	10	70	NTVYLPSPV	21398
HPV18	L1	11	70	NTVYLPSPVA	21399
HPV18	L1	8	496	PAENKDPY	21400
HPV18	L1	11	496	PAENKDPYDKL	21401
HPV18	L1	10	114	PAGGKNKQDI	21402
HPV18	L1	8	224	PAIGEHW	21403
HPV18	L1	9	558	PAKRVRVRA	21404
HPV18	L1	8	344	PASPGSCV	21405
HPV18	L1	9	344	PASPGSCVY	21406
HPV18	L1	10	550	PSATTSSKPA	21407
HPV18	L1	8	67	PSDNTVYL	21408
HPV18	L1	8	354	PSPSGSIV	21409
HPV18	L1	9	399	PSTNLTICA	21410
HPV18	L1	10	540	PTIGPRKRSA	21411

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Type	Protein	No. of Amino. Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	8	91	PTSIFYHA	21412
HPV18	L1	9	472	PTTSLVDTY	21413
HPV18	L1	11	472	PTTSLVDTYRF	21414
HPV18	L1	10	533	QAGLRRKPTI	21415
HPV18	L1	9	287	QSICKYPDY	21416
HPV18	L1	10	287	QSICKYPDYL	21417
HPV18	L1	10	334	QSLYIKGTGM	21418
HPV18	L1	8	410	QSPVPGQY	21419
HPV18	L1	10	410	QSPVPGQYDA	21420
HPV18	L1	11	484	QSVAITCQKDA	21421
HPV18	L1	10	214	QTQLCILGCA	21422
HPV18	L1	9	324	RAGTMGDTV	21423
HPV18	L1	9	299	SADPYGDSM	21424
HPV18	L1	10	299	SADPYGDSMF	21425
HPV18	L1	11	299	SADPYGDSMFF	21426
HPV18	L1	9	551	SATTSSKPA	21427
HPV18	L1	8	127	SAYQYRVF	21428
HPV18	L1	10	127	SAYQYRVFRV	21429
HPV18	L1	9	192	SSHAATSNV	21430
HPV18	L1	9	458	SSILEDWNF	21431
HPV18	L1	11	458	SSILEDWNFGV	21432
HPV18	L1	8	555	SSKPAKR	21433
HPV18	L1	10	555	SSKPAKRVRV	21434
HPV18	L1	11	100	SSRLLTVGNPY	21435
HPV18	L1	10	272	STLQDTKCEV	21436
HPV18	L1	8	400	STNLTICA	21437
HPV18	L1	10	408	STQSPVPGQY	21438
HPV18	L1	8	234	TACKSRPL	21439
HPV18	L1	8	446	TADVMSYI	21440
HPV18	L1	11	446	TADVMSYIHSM	21441
HPV18	L1	11	362	TSDSQLFNKPY	21442
HPV18	L1	11	149	TSIYNPETQL	21443
HPV18	L1	9	474	TSLVDTYRF	21444
HPV18	L1	10	474	TSLVDTYRFV	21445
HPV18	L1	8	197	TSNVSEDV	21446
HPV18	L1	9	554	TSSKPAKR	21447
HPV18	L1	11	554	TSSKPAKRVRV	21448
HPV18	L1	9	397	TTPSTNLT	21449
HPV18	L1	11	397	TTPSTNLTICA	21450
HPV18	L1	8	473	TTSLVDTY	21451
HPV18	L1	10	473	TTSLVDTYRF	21452
HPV18	L1	11	473	TTSLVDTYRFV	21453
HPV18	L1	10	553	TTSSKPAKR	21454
HPV18	L1	9	486	VAITCQKDA	21455
HPV18	L1	10	486	VAITCQKDA	21456
HPV18	L1	10	79	VARVVNTDDY	21457

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	11	79	VARVVNTDDYV	21458
HPV18	L1	8	126	VSAYQYRV	21459
HPV18	L1	9	126	VSAYQYRVF	21460
HPV18	L1	11	126	VSAYQYRVFRV	21461
HPV18	L1	9	200	VSEDVRDNV	21462
HPV18	L1	11	200	VSEDVRDNVSV	21463
HPV18	L1	10	208	VSVDYKQTQL	21464
HPV18	L1	8	89	VTPTSIFY	21465
HPV18	L1	10	89	VTPTSIFYHA	21466
HPV18	L1	8	361	VTSDSQLF	21467
HPV18	L1	8	161	WACAGVEI	21468
HPV18	L1	9	352	YSPSPSGSI	21469
HPV18	L1	10	352	YSPSPSGSIV	21470
HPV18	L1	8	425	YSRHVEEY	21471
HPV18	L1	10	425	YSRHVEEYDL	21472
HPV18	L1	9	4	YTRVLJLHY	21473
HPV18	L1	11	4	YTRVLJLHYHL	21474
HPV18	L2	9	6	AARRKRASV	21475
HPV18	L2	10	201	ASSGTGEEPI	21476
HPV18	L2	9	381	ASSYSNVTV	21477
HPV18	L2	11	381	ASSYSNVTVPL	21478
HPV18	L2	8	423	ASTQYIGI	21479
HPV18	L2	8	341	ATEDNDLF	21480
HPV18	L2	10	341	ATEDNDLFDI	21481
HPV18	L2	11	341	ATEDNDLFDIY	21482
HPV18	L2	11	303	ATMFTRSGTQI	21483
HPV18	L2	8	273	DSDFMDII	21484
HPV18	L2	10	273	DSDFMDIIRL	21485
HPV18	L2	9	109	DSSVVVTSQA	21486
HPV18	L2	8	455	FADGFVAA	21487
HPV18	L2	10	369	FAFFKYSPTI	21488
HPV18	L2	11	200	FASSGTGEEPI	21489
HPV18	L2	9	162	FSDPSIIEV	21490
HPV18	L2	8	296	FSRLGQRA	21491
HPV18	L2	10	296	FSRLGQRATM	21492
HPV18	L2	11	296	FSRLGQRATMF	21493
HPV18	L2	9	122	FTGTSGFDI	21494
HPV18	L2	11	157	FTNPAFSDPSI	21495
HPV18	L2	8	306	FTRSGTQI	21496
HPV18	L2	10	306	FTRSGTQIGA	21497
HPV18	L2	10	314	GARVHFYHDI	21498
HPV18	L2	10	62	GS GTGGRTGY	21499
HPV18	L2	11	62	GS GTGGRTGYI	21500
HPV18	L2	8	25	GTCPPDVV	21501
HPV18	L2	11	25	GTCPPDVVVKV	21502
HPV18	L2	8	64	GTGGRGTGY	21503

[illegible]

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV18	L2	9	64	GTGGRTGYI	21504
HPV18	L2	11	64	GTGGRTGYIPL	21505
HPV18	L2	8	188	GTHGYEEI	21506
HPV18	L2	10	188	GTHGYEIPL	21507
HPV18	L2	9	432	GTHYYLWPL	21508
HPV18	L2	10	432	GTHYYLWPLY	21509
HPV18	L2	11	432	GTHYYLWPLYX	21510
HPV18	L2	10	183	GTPTSNGTHY	21511
HPV18	L2	8	310	GTQIGARV	21512
HPV18	L2	10	310	GTQIGARVHF	21513
HPV18	L2	11	310	GTQIGARVHFY	21514
HPV18	L2	10	124	GTSGFDITSA	21515
HPV18	L2	8	37	GTTLADKI	21516
HPV18	L2	9	37	GTTLADKIL	21517
HPV18	L2	11	37	GTTLADKILQW	21518
HPV18	L2	8	134	GTTTPAVL	21519
HPV18	L2	10	134	GTTTPAVLDI	21520
HPV18	L2	8	292	GTVRFSL	21521
HPV18	L2	8	326	IAPSEYI	21522
HPV18	L2	10	326	IAPSEYIEL	21523
HPV18	L2	10	323	ISPIAPSEY	21524
HPV18	L2	11	323	ISPIAPSEYI	21525
HPV18	L2	10	378	ISSASSYSNV	21526
HPV18	L2	9	210	ISSTPLTV	21527
HPV18	L2	10	152	ISTTNFTNPA	21528
HPV18	L2	11	152	ISTTNFTNPAF	21529
HPV18	L2	9	405	ITLPSTTSV	21530
HPV18	L2	10	405	ITLPSTTSVW	21531
HPV18	L2	8	143	ITPSSTSV	21532
HPV18	L2	10	143	ITPSSTSVSI	21533
HPV18	L2	10	130	ITSAGTTTPA	21534
HPV18	L2	11	130	ITSAGTTTPAV	21535
HPV18	L2	8	249	ITYDNPAF	21536
HPV18	L2	11	249	ITYDNPAFEPV	21537
HPV18	L2	8	40	LADKILQW	21538
HPV18	L2	11	40	LADKILQWSSL	21539
HPV18	L2	9	263	LTDFPRSDV	21540
HPV18	L2	8	242	LTRPSSLI	21541
HPV18	L2	10	242	LTRPSSLITY	21542
HPV18	L2	8	287	LTSRRGTV	21543
HPV18	L2	10	287	LTSRRGTVRF	21544
HPV18	L2	9	391	LTSSWDVPV	21545
HPV18	L2	10	391	LTSSWDVPVY	21546
HPV18	L2	10	254	PAFEPVDITL	21547
HPV18	L2	8	160	PAFSDPSI	21548
HPV18	L2	9	160	PAFSDPSII	21549

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	11	160	PAFDPSIIEV	21550
HPV18	L2	10	285	PALTSRRGTG	21551
HPV18	L2	9	422	PASTQYIGI	21552
HPV18	L2	8	328	PSPEYIEL	21553
HPV18	L2	11	328	PSPEYIELQPL	21554
HPV18	L2	8	362	PSRSTTSF	21555
HPV18	L2	9	362	PSRSTTSFA	21556
HPV18	L2	10	362	PSRSTTSFAF	21557
HPV18	L2	11	362	PSRSTTSFAFF	21558
HPV18	L2	11	245	PSSLITYDNPA	21559
HPV18	L2	8	145	PSSTSVSI	21560
HPV18	L2	9	408	PSTTSVWPI	21561
HPV18	L2	10	408	PSTTSVWPIV	21562
HPV18	L2	9	419	PTAPASTQY	21563
HPV18	L2	10	419	PTAPASTQYI	21564
HPV18	L2	9	98	PTDPSIVTL	21565
HPV18	L2	10	98	PTDPSIVTLI	21566
HPV18	L2	9	120	PTFTGTSGF	21567
HPV18	L2	11	120	PTFTGTSGFDI	21568
HPV18	L2	9	376	PTISSASSY	21569
HPV18	L2	8	86	PTRPPVVI	21570
HPV18	L2	11	86	PTRPPVVIIEPV	21571
HPV18	L2	8	185	PTSGTHGY	21572
HPV18	L2	11	185	PTSGTHGYEEI	21573
HPV18	L2	11	216	PTVRRVAGPRL	21574
HPV18	L2	9	23	QSGTCPPDV	21575
HPV18	L2	10	23	QSGTCPPDVV	21576
HPV18	L2	9	172	QTGEVAGNV	21577
HPV18	L2	10	172	QTGEVAGNVF	21578
HPV18	L2	11	172	QTGEVAGNVFV	21579
HPV18	L2	8	5	RAARRKRA	21580
HPV18	L2	10	5	RAARRKRAV	21581
HPV18	L2	8	11	RASVTDLY	21582
HPV18	L2	8	229	RAYQQVSV	21583
HPV18	L2	9	229	RAYQQVSVV	21584
HPV18	L2	9	268	RSDVPDSDF	21585
HPV18	L2	10	268	RSDVPDSDFM	21586
HPV18	L2	8	308	RSGTQIGA	21587
HPV18	L2	10	308	RSGTQIGARV	21588
HPV18	L2	8	77	RSNIVVDV	21589
HPV18	L2	8	364	RSTTSFAF	21590
HPV18	L2	9	364	RSTTSFAFF	21591
HPV18	L2	11	364	RSTTSFAFFKY	21592
HPV18	L2	8	132	SAGTTTTPA	21593
HPV18	L2	9	132	SAGTTTTPAV	21594
HPV18	L2	10	132	SAGTTTTPAVL	21595

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	8	380	SASSYSNV	21596
HPV18	L2	10	380	SASSYSNVT	21597
HPV18	L2	8	340	SATEDNDL	21598
HPV18	L2	9	340	SATEDNDLF	21599
HPV18	L2	11	340	SATEDNDLFDI	21600
HPV18	L2	9	379	SSASSYSNV	21601
HPV18	L2	11	379	SSASSYSNVT	21602
HPV18	L2	9	202	SSGTGEEPI	21603
HPV18	L2	10	48	SSLGIFLGL	21604
HPV18	L2	10	246	SSLITYDNPA	21605
HPV18	L2	11	246	SSLITYDNPAF	21606
HPV18	L2	8	211	SSTPLPTV	21607
HPV18	L2	11	211	SSTPLPTVRRV	21608
HPV18	L2	8	110	SSVVTSGA	21609
HPV18	L2	8	393	SSWDVVPY	21610
HPV18	L2	8	382	SSYSNVT	21611
HPV18	L2	10	382	SSYSNVTVPL	21612
HPV18	L2	10	212	STPLPTVRRV	21613
HPV18	L2	11	212	STPLPTVRRVA	21614
HPV18	L2	11	147	STSVSISTNF	21615
HPV18	L2	9	153	STTNFTNPA	21616
HPV18	L2	10	153	STTNFTNPAF	21617
HPV18	L2	8	365	STTSFAFF	21618
HPV18	L2	10	365	STTSFAFFKY	21619
HPV18	L2	8	409	STTSVWPI	21620
HPV18	L2	9	409	STTSVWPIV	21621
HPV18	L2	8	420	TAPASTQY	21622
HPV18	L2	9	420	TAPASTQYI	21623
HPV18	L2	11	420	TAPASTQYIGI	21624
HPV18	L2	9	131	TSAGTTTPA	21625
HPV18	L2	10	131	TSAGTTTPAV	21626
HPV18	L2	11	131	TSAGTTTPAVL	21627
HPV18	L2	8	367	TSFAFFKY	21628
HPV18	L2	9	114	TSGAPRPTF	21629
HPV18	L2	9	125	TSGFDITSA	21630
HPV18	L2	10	186	TSGTHGYEEI	21631
HPV18	L2	9	288	TSRRGTVR	21632
HPV18	L2	8	392	TSSWDVVP	21633
HPV18	L2	9	392	TSSWDVVPY	21634
HPV18	L2	10	148	TSVSISTNF	21635
HPV18	L2	11	411	TSVWPIVSPTA	21636
HPV18	L2	8	38	TTLADKIL	21637
HPV18	L2	10	38	TTLADKILQW	21638
HPV18	L2	11	261	TTLTFDPRSDV	21639
HPV18	L2	8	154	TTNFTNPA	21640
HPV18	L2	9	154	TTNFTNPAF	21641

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	8	136	TTPAVLDI	21642
HPV18	L2	9	366	TTSFAFFKY	21643
HPV18	L2	8	410	TTSVWPIV	21644
HPV18	L2	9	135	TTTPAVLDI	21645
HPV18	L2	10	221	VAGPRLYSRA	21646
HPV18	L2	11	221	VAGPRLYSRAY	21647
HPV18	L2	9	339	VSATEDNDL	21648
HPV18	L2	10	339	VSATEDNDLF	21649
HPV18	L2	11	2	VSHRAARRKRA	21650
HPV18	L2	8	150	VSISTTNF	21651
HPV18	L2	11	417	VSPTAPASTQY	21652
HPV18	L2	8	234	VSVANPEF	21653
HPV18	L2	9	234	VSVANPEFL	21654
HPV18	L2	9	104	VTLIEDSSV	21655
HPV18	L2	10	104	VTLIEDSSV	21656
HPV18	L2	10	113	VTSGAPRPTF	21657
HPV18	L2	9	387	VTVPLTSSW	21658
HPV18	L2	11	387	VTVPLTSSWDV	21659
HPV18	L2	8	47	WSSLGIFL	21660
HPV18	L2	11	47	WSSLGIFLGL	21661
HPV18	L2	8	351	YADMDPA	21662
HPV18	L2	9	351	YADMDPAV	21663
HPV18	L2	11	351	YADMDPAVPV	21664
HPV18	L2	8	384	YSNVTVPL	21665
HPV18	L2	8	374	YSPTISSA	21666
HPV18	L2	11	374	YSPTISSASSY	21667
HPV18	L2	8	227	YSRAYQQV	21668
HPV18	L2	10	227	YSRAYQQVSV	21669
HPV18	L2	11	227	YSRAYQQVSA	21670
HPV18	L2	8	400	YTGPDITL	21671
HPV31	E1	11	296	AAALYWYRTGM	21672
HPV31	E1	9	219	AAFVGTGV	21673
HPV31	E1	10	219	AAFVGTGTV	21674
HPV31	E1	10	297	AAALYWYRTGM	21675
HPV31	E1	10	185	AAMLGKFEL	21676
HPV31	E1	11	185	AAMLGKFELY	21677
HPV31	E1	8	504	ATTPCWHY	21678
HPV31	E1	9	504	ATTPCWHYI	21679
HPV31	E1	10	370	CAFLKNSQA	21680
HPV31	E1	8	263	CAKNRITI	21681
HPV31	E1	11	263	CAKNRITIEKL	21682
HPV31	E1	8	249	CSWGMVML	21683
HPV31	E1	9	249	CSWGMVMLM	21684
HPV31	E1	10	249	CSWGMVMLML	21685
HPV31	E1	11	249	CSWGMVMLMLV	21686
HPV31	E1	8	213	CTDWCVA	21687

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	9	213	CTDWCVAAF	21688
HPV31	E1	11	213	CTDWCVAAFGV	21689
HPV31	E1	10	495	DAKIGMLDDA	21690
HPV31	E1	9	503	DATTPCWYH	21691
HPV31	E1	10	503	DATTPCWYHI	21692
HPV31	E1	8	364	DSDSNACA	21693
HPV31	E1	9	364	DSDSNACAF	21694
HPV31	E1	10	364	DSDSNACAFI	21695
HPV31	E1	8	352	DSEIAYKY	21696
HPV31	E1	9	352	DSEIAYKYA	21697
HPV31	E1	11	352	DSEIAYKYAQL	21698
HPV31	E1	9	613	DSFSTFKCV	21699
HPV31	E1	9	130	DSGYGNTEV	21700
HPV31	E1	8	366	DSNACAFI	21701
HPV31	E1	9	39	DSSDTGEDM	21702
HPV31	E1	10	39	DSSDTGEDMV	21703
HPV31	E1	9	42	DTGEDMVDI	21704
HPV31	E1	10	42	DTGEDMVDFI	21705
HPV31	E1	9	332	DTTFDLQSM	21706
HPV31	E1	10	332	DTTFDLQSMV	21707
HPV31	E1	8	74	EAEHAEAEV	21708
HPV31	E1	9	74	EAEHAEAEVQV	21709
HPV31	E1	11	74	EAEHAEAEVQV	21710
HPV31	E1	8	62	EAEHAEAEV	21711
HPV31	E1	9	62	EAEHAEAEVQV	21712
HPV31	E1	11	62	EAEHAEAEVQV	21713
HPV31	E1	10	80	EAEHAEAEVQV	21714
HPV31	E1	11	80	EAEHAEAEVQV	21715
HPV31	E1	9	64	EAEHAEAEVQV	21716
HPV31	E1	11	315	EAEHAEAEVQV	21717
HPV31	E1	8	168	EAEHAEAEVQV	21718
HPV31	E1	10	168	EAEHAEAEVQV	21719
HPV31	E1	11	168	EAEHAEAEVQV	21720
HPV31	E1	8	139	EAEHAEAEVQV	21721
HPV31	E1	8	593	EAEHAEAEVQV	21722
HPV31	E1	10	593	EAEHAEAEVQV	21723
HPV31	E1	9	566	EAEHAEAEVQV	21724
HPV31	E1	9	457	EAEHAEAEVQV	21725
HPV31	E1	10	457	EAEHAEAEVQV	21726
HPV31	E1	11	91	EAEHAEAEVQV	21727
HPV31	E1	8	11	EAEHAEAEVQV	21728
HPV31	E1	9	11	EAEHAEAEVQV	21729
HPV31	E1	10	11	EAEHAEAEVQV	21730
HPV31	E1	10	386	EAEHAEAEVQV	21731
HPV31	E1	10	225	EAEHAEAEVQV	21732
HPV31	E1	11	225	EAEHAEAEVQV	21733

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	8	78	IAEAVQVL	21734
HPV31	E1	9	71	HAQEAEEHA	21735
HPV31	E1	11	71	HAQEAEEHAEA	21736
HPV31	E1	8	328	HSFNDTTF	21737
HPV31	E1	10	328	HSFNDTTFDL	21738
HPV31	E1	9	560	HSRLVVFTF	21739
HPV31	E1	8	355	IAYKYAQL	21740
HPV31	E1	9	355	IAYKYAQLA	21741
HPV31	E1	11	309	ISDVYGETPEW	21742
HPV31	E1	8	471	ISFLQGC	21743
HPV31	E1	9	471	ISFLQGCII	21744
HPV31	E1	11	471	ISFLQGCIIISY	21745
HPV31	E1	8	105	ISPRKAI	21746
HPV31	E1	10	105	ISPRKAIICI	21747
HPV31	E1	9	97	ISSCVDYNI	21748
HPV31	E1	8	280	ISTNCMLI	21749
HPV31	E1	10	479	ISYANSKSHF	21750
HPV31	E1	11	479	ISYANSKSHFW	21751
HPV31	E1	10	268	ITIEKLLLEKL	21752
HPV31	E1	11	268	ITIEKLLLEKLL	21753
HPV31	E1	8	184	KAAMLGKF	21754
HPV31	E1	11	184	KAAMLGKFEL	21755
HPV31	E1	11	532	KALMQLKCPPL	21756
HPV31	E1	8	590	KSFFSRTW	21757
HPV31	E1	11	590	KSFFSRTWCRL	21758
HPV31	E1	9	485	KSHFWLQPL	21759
HPV31	E1	10	485	KSHFWLQPLA	21760
HPV31	E1	8	374	KSNSQAKI	21761
HPV31	E1	9	374	KSNSQAKIV	21762
HPV31	E1	9	210	KSTCTDWCV	21763
HPV31	E1	10	210	KSTCTDWCVA	21764
HPV31	E1	11	210	KSTCTDWCVAA	21765
HPV31	E1	8	463	KSYFGMSL	21766
HPV31	E1	9	463	KSYFGMSLI	21767
HPV31	E1	11	463	KSYFGMSLISF	21768
HPV31	E1	8	119	KTAKRRLF	21769
HPV31	E1	10	119	KTAKRRLFEL	21770
HPV31	E1	9	232	KTLLQPYCL	21771
HPV31	E1	10	232	KTLLQPYCLY	21772
HPV31	E1	8	179	KTNGKAA	21773
HPV31	E1	9	179	KTNGKAAAM	21774
HPV31	E1	10	179	KTNGKAAAML	21775
HPV31	E1	8	247	LACSWGIV	21776
HPV31	E1	9	247	LACSWGIVM	21777
HPV31	E1	10	247	LACSWGIVML	21778
HPV31	E1	11	247	LACSWGIVMLM	21779

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV31	E1	8	493	LADAKIGM	21780
HPV31	E1	9	493	LADAKIGML	21781
HPV31	E1	8	362	LADSDSNA	21782
HPV31	E1	10	362	LADSDSNACA	21783
HPV31	E1	11	362	LADSDSNACAF	21784
HPV31	E1	8	437	LSALKLFL	21785
HPV31	E1	11	437	LSALKLFLKGV	21786
HPV31	E1	8	94	LSDISSCV	21787
HPV31	E1	10	94	LSDISSCVDY	21788
HPV31	E1	9	584	LSDKNWKSF	21789
HPV31	E1	10	584	LSDKNWKSF	21790
HPV31	E1	8	337	LSQMVQWA	21791
HPV31	E1	9	337	LSQMVQWAY	21792
HPV31	E1	11	468	MSLISFLQGC	21793
HPV31	E1	8	306	MSNISDVY	21794
HPV31	E1	8	549	NAGKDDR	21795
HPV31	E1	10	549	NAGKDDRWPY	21796
HPV31	E1	11	549	NAGKDDRWPYL	21797
HPV31	E1	8	518	NALDGNP	21798
HPV31	E1	10	518	NALDGNPVS	21799
HPV31	E1	8	483	NSKSHFWL	21800
HPV31	E1	11	483	NSKSHFWLQPL	21801
HPV31	E1	9	117	NSKTAKRL	21802
HPV31	E1	10	117	NSKTAKRLRF	21803
HPV31	E1	9	135	NTEVETQ	21804
HPV31	E1	10	135	NTEVETQMV	21805
HPV31	E1	9	460	NTGKSYFGM	21806
HPV31	E1	11	460	NTGKSYFGMSL	21807
HPV31	E1	8	170	PTRNILQV	21808
HPV31	E1	9	170	PTRNILQVL	21809
HPV31	E1	9	60	QAEATAQA	21810
HPV31	E1	10	60	QAEATAQAL	21811
HPV31	E1	11	60	QAEATAQALF	21812
HPV31	E1	11	378	QAKIVKDCGTM	21813
HPV31	E1	9	67	QALFHAQEA	21814
HPV31	E1	9	245	QSLACSWG	21815
HPV31	E1	10	245	QSLACSWG	21816
HPV31	E1	11	245	QSLACSWG	21817
HPV31	E1	10	207	QSNKSTCTDW	21818
HPV31	E1	8	323	QTVLQHSF	21819
HPV31	E1	9	394	RAEKQMS	21820
HPV31	E1	8	293	RSTAAALY	21821
HPV31	E1	9	293	RSTAAALY	21822
HPV31	E1	10	293	RSTAAALY	21823
HPV31	E1	10	303	RTGMSNISDV	21824
HPV31	E1	11	303	RTGMSNISDVY	21825

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	8	595	RTWCRLNL	21826
HPV31	E1	10	438	SALKFLKGV	21827
HPV31	E1	8	98	SSCVDYNI	21828
HPV31	E1	8	40	SSDTGEDM	21829
HPV31	E1	9	40	SSDTGEDMV	21830
HPV31	E1	11	40	SSDTGEDMVF	21831
HPV31	E1	8	294	STAAALYW	21832
HPV31	E1	9	294	STAAALYWY	21833
HPV31	E1	8	211	STCTDWCV	21834
HPV31	E1	9	211	STCTDWCVA	21835
HPV31	E1	10	211	STCTDWCVA	21836
HPV31	E1	11	211	STCTDWCVA	21837
HPV31	E1	11	616	STCTDWCVA	21838
HPV31	E1	11	295	STFKCVSQNI	21839
HPV31	E1	8	120	TAAALYWY	21840
HPV31	E1	9	65	TAKRRRLFEL	21841
HPV31	E1	11	65	TAQALFHA	21842
HPV31	E1	8	180	TAQALFHAQEA	21843
HPV31	E1	9	180	TSNGKAAM	21844
HPV31	E1	8	333	TSNGKAAML	21845
HPV31	E1	9	333	TTFDLSQM	21846
HPV31	E1	11	333	TTFDLSQMV	21847
HPV31	E1	8	505	TTFDLSQMVQW	21848
HPV31	E1	11	505	TPCWYHYI	21849
HPV31	E1	10	218	TPCWYHYIDNY	21850
HPV31	E1	11	218	VAAFVGTGV	21851
HPV31	E1	8	227	VAAFVGTGVA	21852
HPV31	E1	9	227	VAEGFKTL	21853
HPV31	E1	10	413	VAEGFKTL	21854
HPV31	E1	11	413	VDEGDWRDI	21855
HPV31	E1	9	434	VDEGDWRDIV	21856
HPV31	E1	10	434	VSFLSALKL	21857
HPV31	E1	11	434	VSFLSALKLF	21858
HPV31	E1	10	197	VSFLSALKLFL	21859
HPV31	E1	9	621	VSMELIRPF	21860
HPV31	E1	9	525	VSGQNRTL	21861
HPV31	E1	10	525	VSIDVKIHA	21862
HPV31	E1	11	525	VSIDVKHKAL	21863
HPV31	E1	9	223	VSIDVKHKALM	21864
HPV31	E1	8	343	VTGTVAEGF	21865
HPV31	E1	8	481	WAYDNDVM	21866
HPV31	E1	9	481	YANSKSIIF	21867
HPV31	E1	10	481	YANSKSHFW	21868
HPV31	E1	11	359	YANSKSHFWL	21869
HPV31	E2	10	277	YAQLADSDNA	21870
HPV31	E2	11	277	AAACTNQTRA	21871
HPV31	E2			AAACTNQTRAV	21871

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	9	278	AACTNQTRA	21872
HPV31	E2	10	278	AACTNQTRAV	21873
HPV31	E2	8	291	ATPIIHL	21874
HPV31	E2	9	228	CALGTSEGV	21875
HPV31	E2	9	330	CTDGKHNA	21876
HPV31	E2	10	330	CTDGKHKNAI	21877
HPV31	E2	11	330	CTDGKHKNIV	21878
HPV31	E2	8	280	CTNQTRAV	21879
HPV31	E2	8	145	CTVVEGVV	21880
HPV31	E2	8	301	DANILKCL	21881
HPV31	E2	10	301	DANILKCLRY	21882
HPV31	E2	9	22	DSKRLCDHI	21883
HPV31	E2	11	22	DSKRLCDHIDY	21884
HPV31	E2	10	265	DSVDSVNCGV	21885
HPV31	E2	11	265	DSVDSVNCGVI	21886
HPV31	E2	8	268	DSVNCGVI	21887
HPV31	E2	10	268	DSVNCGVISA	21888
HPV31	E2	11	268	DSVNCGVISAA	21889
HPV31	E2	11	174	EAKKYGTGKKW	21890
HPV31	E2	9	197	ESVFSDEI	21891
HPV31	E2	11	197	ESVFSDEISF	21892
HPV31	E2	8	80	ETLNNTY	21893
HPV31	E2	9	2	ETLSQRLNV	21894
HPV31	E2	8	207	FAGIVTKL	21895
HPV31	E2	11	207	FAGIVTKLPTA	21896
HPV31	E2	8	200	FSSDEISF	21897
HPV31	E2	9	200	FSSDEISFA	21898
HPV31	E2	11	200	FSSDEISFAGI	21899
HPV31	E2	8	171	FTEAKKY	21900
HPV31	E2	8	179	GTGKKWEV	21901
HPV31	E2	10	179	GTGKKWEVHA	21902
HPV31	E2	9	231	GTSEGVRR	21903
HPV31	E2	8	187	HAGGQVIV	21904
HPV31	E2	9	187	HAGGQVIVF	21905
HPV31	E2	8	52	HSINHQVV	21906
HPV31	E2	10	52	HSINHQVVPA	21907
HPV31	E2	11	52	HSINHQVVPAAL	21908
HPV31	E2	10	205	ISFAGIVTKL	21909
HPV31	E2	9	345	ISTSQRDDF	21910
HPV31	E2	10	345	ISTSQRDDFL	21911
HPV31	E2	11	165	ITYFVNFTEA	21912
HPV31	E2	8	66	KAKALQAI	21913
HPV31	E2	10	66	KAKALQAIEL	21914
HPV31	E2	8	68	KALQAIEL	21915
HPV31	E2	10	68	KALQAIELQM	21916
HPV31	E2	11	68	KALQAIELQMM	21917

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	10	45	KAREMGHSI	21918
HPV31	E2	11	226	KTCALGTSEGV	21919
HPV31	E2	8	312	LSKYKQLY	21920
HPV31	E2	11	312	LSKYKQLYEQV	21921
HPV31	E2	8	62	LSVSKAKA	21922
HPV31	E2	9	62	LSVSKAKAL	21923
HPV31	E2	11	62	LSVSKAKALQA	21924
HPV31	E2	8	103	LTAPTGCL	21925
HPV31	E2	8	337	NAIVTLTY	21926
HPV31	E2	9	337	NAIVTLTYI	21927
HPV31	E2	9	84	NTEYKNEDW	21928
HPV31	E2	11	84	NTEYKNEDWTM	21929
HPV31	E2	8	254	NTIHPNKL	21930
HPV31	E2	9	254	NTIHPNKL	21931
HPV31	E2	8	127	NTMHYTNW	21932
HPV31	E2	10	127	NTMHYTNWKF	21933
HPV31	E2	11	127	NTMHYTNWKFI	21934
HPV31	E2	11	219	NTTSNSKTCA	21935
HPV31	E2	9	355	NTVKIPNTV	21936
HPV31	E2	11	355	NTVKIPNTVSV	21937
HPV31	E2	9	361	NTVSVSTGY	21938
HPV31	E2	10	361	NTVSVSTGYM	21939
HPV31	E2	8	60	PALSVSKA	21940
HPV31	E2	10	60	PALSVSKAKA	21941
HPV31	E2	11	60	PALSVSKAKAL	21942
HPV31	E2	9	290	PATPIHL	21943
HPV31	E2	10	106	PTGCLKKHGY	21944
HPV31	E2	8	71	QAIELQMM	21945
HPV31	E2	9	71	QAIELQMML	21946
HPV31	E2	9	283	QTRAVSCPA	21947
HPV31	E2	8	96	QTSLELYL	21948
HPV31	E2	10	96	QTSLELYLTA	21949
HPV31	E2	11	285	RAVSCPATTPI	21950
HPV31	E2	11	276	SAAACTNQTRA	21951
HPV31	E2	8	201	SSDEISFA	21952
HPV31	E2	10	201	SSDEISFAGI	21953
HPV31	E2	11	201	SSDEISFAGIV	21954
HPV31	E2	8	346	STSQRDDF	21955
HPV31	E2	9	346	STSQRDDFL	21956
HPV31	E2	8	232	TSEGVVRA	21957
HPV31	E2	9	97	TSLELYLTA	21958
HPV31	E2	8	222	TSNSKTCA	21959
HPV31	E2	9	222	TSNSKTAL	21960
HPV31	E2	8	347	TSQRDDFL	21961
HPV31	E2	11	347	TSQRDDFLNTV	21962
HPV31	E2	11	292	TTPIIHLKGDA	21963

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	9	221	TTNSKTCA	21964
HPV31	E2	10	221	TTNSKTCAL	21965
HPV31	E2	10	220	TTNSKTCAL	21966
HPV31	E2	11	220	TTNSKTCAL	21967
HPV31	E2	9	287	VSCPATPI	21968
HPV31	E2	10	287	VSCPATPIH	21969
HPV31	E2	9	64	VSKAKALQA	21970
HPV31	E2	10	64	VSKAKALQAI	21971
HPV31	E2	8	365	VSTGYMTI	21972
HPV31	E2	8	363	VSVSTGYM	21973
HPV31	E2	10	363	VSVSTGYMTI	21974
HPV31	E2	11	328	WTCTDGKHKNA	21975
HPV31	E2	8	92	WTMQQTSL	21976
HPV31	E2	10	92	WTMQQTSLLEL	21977
HPV31	E2	11	92	WTMQQTSLLEY	21978
HPV31	E2	8	131	YTNWKFIY	21979
HPV31	E2	9	131	YTNWKFIYL	21980
HPV31	E2	11	131	YTNWKFIYLCI	21981
HPV31	E2	11	115	YTVQVQFDGDV	21982
HPV31	E5	8	40	ATLLLLIV	21983
HPV31	E5	9	40	ATLLLLIVI	21984
HPV31	E5	10	40	ATLLLLIVIL	21985
HPV31	E5	11	40	ATLLLLIVILW	21986
HPV31	E5	8	53	ATSPLRCF	21987
HPV31	E5	10	53	ATSPLRCFCI	21988
HPV31	E5	11	53	ATSPLRCFCIY	21989
HPV31	E5	9	52	IATSPRCF	21990
HPV31	E5	11	52	IATSPRCFCI	21991
HPV31	E5	8	6	ISTVSIVL	21992
HPV31	E5	10	6	ISTVSIVLCF	21993
HPV31	E5	11	6	ISTVSIVLCFL	21994
HPV31	E5	9	34	LSVSVYATL	21995
HPV31	E5	10	34	LSVSVYATLL	21996
HPV31	E5	11	34	LSVSVYATLLL	21997
HPV31	E5	9	7	STVSIVLCF	21998
HPV31	E5	10	7	STVSIVLCFL	21999
HPV31	E5	11	7	STVSIVLCFLL	22000
HPV31	E5	9	54	TSPLRCFCI	22001
HPV31	E5	10	54	TSPLRCFCIY	22002
HPV31	E5	11	54	TSPLRCFCIYV	22003
HPV31	E5	8	9	VSIVLCFL	22004
HPV31	E5	9	9	VSIVLCFLL	22005
HPV31	E5	11	9	VSIVLCFLLCF	22006
HPV31	E5	8	36	VSVYATLL	22007
HPV31	E5	9	36	VSVYATLLL	22008
HPV31	E5	10	36	VSVYATLLLL	22009

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E5	11	36	VSVYATLLLLLI	22010
HPV31	E5	8	39	YATLLLLLI	22011
HPV31	E5	9	39	YATLLLLIV	22012
HPV31	E5	10	39	YATLLLLIVI	22013
HPV31	E5	11	39	YATLLLLIVIL	22014
HPV31	E6	8	63	CTKCLRFY	22015
HPV31	E6	11	63	CTKCLRFYSKV	22016
HPV31	E6	11	57	DTPHGVCTKCL	22017
HPV31	E6	8	39	ETEVLDF	22018
HPV31	E6	9	39	ETEVLDFAF	22019
HPV31	E6	8	45	FAFTDLTI	22020
HPV31	E6	9	45	FAFTDLTIV	22021
HPV31	E6	10	45	FAFTDLTIVY	22022
HPV31	E6	8	47	FTDLTIVY	22023
HPV31	E6	9	15	LSSALEIPY	22024
HPV31	E6	9	37	LTETEVLDF	22025
HPV31	E6	10	37	LTETEVLDF	22026
HPV31	E6	11	37	LTETEVLDFAF	22027
HPV31	E6	9	91	L'TNKGICDL	22028
HPV31	E6	10	91	L'TNKGICDLL	22029
HPV31	E6	11	91	L'TNKGICDLLI	22030
HPV31	E6	8	5	PAERPRKL	22031
HPV31	E6	11	5	PAERPRKLHEL	22032
HPV31	E6	10	17	SALEIPYDEL	22033
HPV31	E6	8	16	SSALEIPY	22034
HPV31	E6	11	16	SSALEIPYDEL	22035
HPV31	E6	11	86	TTLEKLTNKG	22036
HPV31	E6	9	73	VSEFRWYRY	22037
HPV31	E6	11	73	VSEFRWYRYSV	22038
HPV31	E6	9	132	WTGRCIACW	22039
HPV31	E6	9	70	YSKVSEFRW	22040
HPV31	E6	10	70	YSKVSEFRWY	22041
HPV31	E6	8	81	YSVYGTTL	22042
HPV31	E6	11	81	YSVYGTTLLEKL	22043
HPV31	E7	10	19	ATDLHCYEQL	22044
HPV31	E7	8	30	DSSDEEDV	22045
HPV31	E7	9	30	DSSDEEDVI	22046
HPV31	E7	8	48	DTSNYSNIV	22047
HPV31	E7	10	48	DTSNYSNIVTF	22048
HPV31	E7	8	18	EATDLHCY	22049
HPV31	E7	11	18	EATDLHCYEQL	22050
HPV31	E7	8	4	ETPTLQDY	22051
HPV31	E7	9	4	ETPTLQDYV	22052
HPV31	E7	10	4	ETPTLQDYVL	22053
HPV31	E7	8	62	KSTLRCLV	22054
HPV31	E7	8	6	PTLQDYVL	22055

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E7	10	6	PTLQDYVLDL	22056
HPV31	E7	9	44	QAEPDTSNY	22057
HPV31	E7	11	44	QAEPDTSNYNI	22058
HPV31	E7	9	70	QSTQVDIRI	22059
HPV31	E7	10	70	QSTQVDIRIL	22060
HPV31	E7	8	31	SSDEEDVI	22061
HPV31	E7	8	71	STQVDIRI	22062
HPV31	E7	9	71	STQVDIRIL	22063
HPV31	E7	9	49	TSNYNIVTF	22064
HPV31	E7	11	55	VTFCQCKSTL	22065
HPV31	L1	10	347	AAIANSDDTF	22066
HPV31	L1	8	285	ATLANSTY	22067
HPV31	L1	9	285	ATLANSTYF	22068
HPV31	L1	8	9	ATVYLPV	22069
HPV31	L1	10	9	ATVYLPVPV	22070
HPV31	L1	11	346	CAAIAISDDTF	22071
HPV31	L1	9	304	DAQIFNKPY	22072
HPV31	L1	10	304	DAQIFNKPYW	22073
HPV31	L1	11	304	DAQIFNKPYWM	22074
HPV31	L1	8	129	DTENSRY	22075
HPV31	L1	9	129	DTENSRYA	22076
HPV31	L1	9	203	DTGFGAMDF	22077
HPV31	L1	11	203	DTGFGAMDFTA	22078
HPV31	L1	8	216	DTKSNVPL	22079
HPV31	L1	10	216	DTKSNVPLDI	22080
HPV31	L1	9	353	DTTFKSNF	22081
HPV31	L1	8	336	DTTRSTNM	22082
HPV31	L1	10	336	DTTRSTNMSV	22083
HPV31	L1	10	417	DTYRFVTSQA	22084
HPV31	L1	11	417	DTYRFVTSQAI	22085
HPV31	L1	9	8	EATVYLPV	22086
HPV31	L1	11	8	EATVYLPVPV	22087
HPV31	L1	8	270	ESVPTDLY	22088
HPV31	L1	9	270	ESVPTDLYI	22089
HPV31	L1	8	95	ETQLVWA	22090
HPV31	L1	10	95	ETQLVWACV	22091
HPV31	L1	8	456	FSADLDQF	22092
HPV31	L1	10	456	FSADLDQFPL	22093
HPV31	L1	11	211	FTALQDTKSNV	22094
HPV31	L1	8	207	GAMDFAL	22095
HPV31	L1	8	38	GSARLLTV	22096
HPV31	L1	8	280	GSGSTATL	22097
HPV31	L1	9	280	GSGSTATLA	22098
HPV31	L1	9	413	GSLEDYRF	22099
HPV31	L1	10	413	GSLEDYRFV	22100
HPV31	L1	8	298	GSMVTSDA	22101

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	10	298	GSMVTSDAQI	22102
HPV31	L1	11	298	GSMVTSDAQIF	22103
HPV31	L1	8	173	GSPCSNNA	22104
HPV31	L1	9	173	GSPCSNNAI	22105
HPV31	L1	11	282	GSTATLANSTY	22106
HPV31	L1	8	141	GTDNRECI	22107
HPV31	L1	10	141	GTDNRECISM	22108
HPV31	L1	11	266	GTVGESVPTDL	22109
HPV31	L1	8	36	IIAGSARLL	22110
HPV31	L1	10	36	HAGSARLLTV	22111
HPV31	L1	8	393	HSMNPAIL	22112
HPV31	L1	11	393	HSMNPAILEDW	22113
HPV31	L1	8	349	IANSDITF	22114
HPV31	L1	10	118	ISGHPLLNKF	22115
HPV31	L1	10	148	ISMDYKQTQL	22116
HPV31	L1	8	382	ITLSADIM	22117
HPV31	L1	10	382	ITLSADIMTY	22118
HPV31	L1	11	382	ITLSADIMTYI	22119
HPV31	L1	9	181	ITPGDCPPL	22120
HPV31	L1	11	181	ITPGDCPPLEL	22121
HPV31	L1	10	482	KAGKRSAPSA	22122
HPV31	L1	8	54	KSDNPKKI	22123
HPV31	L1	9	54	KSDNPKKIV	22124
HPV31	L1	10	54	KSDNPKKIVV	22125
HPV31	L1	8	218	KSNVPLDI	22126
HPV31	L1	8	357	KSSNFKEY	22127
HPV31	L1	9	357	KSSNFKEYL	22128
HPV31	L1	8	384	LSADIMTY	22129
HPV31	L1	9	384	LSADIMTYI	22130
HPV31	L1	9	407	LTTPSGSL	22131
HPV31	L1	8	43	LTVGHPYY	22132
HPV31	L1	10	43	LTVGIIPYYSI	22133
HPV31	L1	9	1	MSLWRPSEA	22134
HPV31	L1	11	1	MSLWRPSEATV	22135
HPV31	L1	8	343	MSVCAALIA	22136
HPV31	L1	10	389	MTYIHSMNPA	22137
HPV31	L1	11	389	MTYIHSMNPAI	22138
HPV31	L1	11	179	NAITPGDCPPL	22139
HPV31	L1	11	351	NSDTTFKSSNF	22140
HPV31	L1	9	227	NSICKYPDY	22141
HPV31	L1	10	227	NSICKYPDYL	22142
HPV31	L1	9	193	NSVIQDGM	22143
HPV31	L1	10	193	NSVIQDGMV	22144
HPV31	L1	9	397	PALEDWNF	22145
HPV31	L1	11	397	PALEDWNFGL	22146
HPV31	L1	9	489	PSASTTTPA	22147

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	8	6	PSEATVYL	22148
HPV31	L1	11	6	PSEATVYLPV	22149
HPV31	L1	9	411	PSGSLEDY	22150
HPV31	L1	11	411	PSGSLEDYRF	22151
HPV31	L1	10	296	PSGSMVTSDA	22152
HPV31	L1	8	294	PTPSGSMV	22153
HPV31	L1	10	472	QAQYRARPKF	22154
HPV31	L1	9	425	QAITCQKTA	22155
HPV31	L1	9	316	RAQGHNGI	22156
HPV31	L1	11	316	RAQGHNGICW	22157
HPV31	L1	8	476	RAPKFKA	22158
HPV31	L1	9	264	RSGTVGESV	22159
HPV31	L1	9	339	RSTNMSVCA	22160
HPV31	L1	10	339	RSTNMSVCAA	22161
HPV31	L1	11	339	RSTNMSVCAAI	22162
HPV31	L1	8	30	RTNIYYHA	22163
HPV31	L1	11	30	RTNIYYIAGSA	22164
HPV31	L1	8	385	SADIMTYI	22165
HPV31	L1	11	385	SADIMTYIHSM	22166
HPV31	L1	9	457	SADLDQFPL	22167
HPV31	L1	11	487	SAPSASTTTPA	22168
HPV31	L1	11	39	SARLLTVGHPY	22169
HPV31	L1	8	490	SASTTTPA	22170
HPV31	L1	8	358	SSNFKEYL	22171
HPV31	L1	10	283	STATLANSTY	22172
HPV31	L1	11	283	STATLANSTYF	22173
HPV31	L1	11	23	STDEYVTRNI	22174
HPV31	L1	8	340	STNMSVCA	22175
HPV31	L1	9	340	STNMSVCAA	22176
HPV31	L1	10	340	STNMSVCAAI	22177
HPV31	L1	11	340	STNMSVCAAIA	22178
HPV31	L1	11	290	STYFPTPSGSM	22179
HPV31	L1	10	212	TALQDTKSNV	22180
HPV31	L1	11	432	TAPQPKEDPF	22181
HPV31	L1	9	284	TATLANSTY	22182
HPV31	L1	10	284	TATLANSTYF	22183
HPV31	L1	11	302	TSDAQIFNKPY	22184
HPV31	L1	11	89	TSFYNPETQRL	22185
HPV31	L1	11	423	TSQAITCQKTA	22186
HPV31	L1	8	354	TTFKSSNF	22187
HPV31	L1	11	354	TTFKSSNFKEY	22188
HPV31	L1	8	408	TTPPSGSL	22189
HPV31	L1	9	337	TTRSTNMSV	22190
HPV31	L1	11	337	TTRSTNMSVCA	22191
HPV31	L1	9	239	VAEPYGDTL	22192
HPV31	L1	10	239	VAEPYGDTLF	22193

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	11	239	VAEPYGDTLFF	22194
HPV31	L1	8	66	VSGLOYRV	22195
HPV31	L1	9	66	VSGLOYRVF	22196
HPV31	L1	11	66	VSGLOYRVFRV	22197
HPV31	L1	10	18	VSKVVSTDEY	22198
HPV31	L1	11	18	VSKVVSTDEYV	22199
HPV31	L1	8	28	VRTNIYY	22200
HPV31	L1	10	28	VRTNIYYHA	22201
HPV31	L1	8	301	VTSDAQIF	22202
HPV31	L1	8	101	WACVGLEV	22203
HPV31	L2	9	24	AAGTCPSDV	22204
HPV31	L2	10	24	AAGTCPSDVI	22205
HPV31	L2	9	340	ASATTTSTL	22206
HPV31	L2	9	85	ASIPRPPV	22207
HPV31	L2	11	85	ASIPRPPVSI	22208
HPV31	L2	10	367	ATHNVSPSTA	22209
HPV31	L2	11	367	ATHNVSPSTAV	22210
HPV31	L2	9	311	ATIGARVHY	22211
HPV31	L2	10	311	ATIGARVHY	22212
HPV31	L2	11	311	ATIGARVHY	22213
HPV31	L2	10	15	ATQLYQTCKA	22214
HPV31	L2	11	15	ATQLYQTCKAA	22215
HPV31	L2	8	226	ATQQVKVI	22216
HPV31	L2	9	135	ATTADITPA	22217
HPV31	L2	10	135	ATTADITPAI	22218
HPV31	L2	11	135	ATTADITPAI	22219
HPV31	L2	11	342	ATTSTLNDGL	22220
HPV31	L2	10	358	DTDFTVDTPA	22221
HPV31	L2	8	364	DTPATHNV	22222
HPV31	L2	9	139	DTTPAILDV	22223
HPV31	L2	10	84	EASIPRPPV	22224
HPV31	L2	9	111	ESGIVDVGA	22225
HPV31	L2	11	111	ESGIVDVGAPA	22226
HPV31	L2	8	331	ESIEMQPL	22227
HPV31	L2	10	331	ESIEMQPLGA	22228
HPV31	L2	8	171	ETSGHILL	22229
HPV31	L2	9	253	ETVNAEESL	22230
HPV31	L2	10	253	ETVNAEESLY	22231
HPV31	L2	11	253	ETVNAEESLYF	22232
HPV31	L2	8	404	FSGPDVPI	22233
HPV31	L2	11	404	FSGPDVPIEHA	22234
HPV31	L2	8	263	FSNTSHNI	22235
HPV31	L2	9	263	FSNTSHINIA	22236
HPV31	L2	8	459	FTDVSVA	22237
HPV31	L2	11	361	FTVDTPATHNV	22238
HPV31	L2	8	314	GARVHY	22239

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	10	314	GARVHYYYDI	22240
HPV31	L2	10	339	GASATTSTL	22241
HPV31	L2	8	310	GATIGARV	22242
HPV31	L2	10	310	GATIGARVHY	22243
HPV31	L2	11	310	GATIGARVHY	22244
HPV31	L2	10	63	GSGTGRTGY	22245
HPV31	L2	11	63	GSGTGRTGYV	22246
HPV31	L2	10	49	GSMGVFFGGL	22247
HPV31	L2	8	26	GTCPSDVI	22248
HPV31	L2	11	26	GTCPSDVIPIKI	22249
HPV31	L2	8	65	GTGGRGTGY	22250
HPV31	L2	9	65	GTGGRGTGYVPL	22251
HPV31	L2	11	65	GTGGRGTGYVPL	22252
HPV31	L2	9	413	HAPTQVFPF	22253
HPV31	L2	11	413	HAPTQVFPFPL	22254
HPV31	L2	8	38	HTTIADQI	22255
HPV31	L2	9	38	HTTIADQIL	22256
HPV31	L2	11	38	HTTIADQILRY	22257
HPV31	L2	8	41	IADQILRY	22258
HPV31	L2	11	41	IADQILRYGSM	22259
HPV31	L2	8	280	IALHRPAL	22260
HPV31	L2	8	270	IAPDPDFL	22261
HPV31	L2	10	270	IAPDPDFLDI	22262
HPV31	L2	11	270	IAPDPDFLDII	22263
HPV31	L2	10	134	IATTADTTA	22264
HPV31	L2	11	134	IATTADTTAI	22265
HPV31	L2	11	323	ISSINPAGESI	22266
HPV31	L2	9	183	ISTHNYEEI	22267
HPV31	L2	11	183	ISTHNYEEIPM	22268
HPV31	L2	10	205	ITSSTPIPGV	22269
HPV31	L2	8	245	ITYENPAY	22270
HPV31	L2	11	245	ITYENPAYETV	22271
HPV31	L2	10	23	KAAGTCPSDV	22272
HPV31	L2	11	23	KAAGTCPSDVI	22273
HPV31	L2	8	225	KATQQVKV	22274
HPV31	L2	9	225	KATQQVKVI	22275
HPV31	L2	8	423	LAPTTQV	22276
HPV31	L2	10	423	LAPTTQVSI	22277
HPV31	L2	11	423	LAPTTQVSIF	22278
HPV31	L2	8	238	LSAPKQLI	22279
HPV31	L2	10	238	LSAPKQLITY	22280
HPV31	L2	11	178	LSSSISTHNY	22281
HPV31	L2	9	395	LSTGFDIPI	22282
HPV31	L2	10	395	LSTGFDIPIF	22283
HPV31	L2	8	75	LSTRPSTV	22284
HPV31	L2	11	75	LSTRPSTVSEA	22285

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	8	287	LTSRRNTV	22286
HPV31	L2	10	287	LTSRRNTVRY	22287
HPV31	L2	8	256	NAEESLYF	22288
HPV31	L2	10	390	NTTVPLSTGF	22289
HPV31	L2	8	292	NTVRYSL	22290
HPV31	L2	8	169	PAETSGHL	22291
HPV31	L2	9	169	PAETSGHLL	22292
HPV31	L2	10	169	PAETSGHLLL	22293
HPV31	L2	8	328	PAGESIEM	22294
HPV31	L2	11	328	PAGESIEMQPL	22295
HPV31	L2	9	142	PAILDVTSV	22296
HPV31	L2	10	285	PALTSRRNTV	22297
HPV31	L2	10	217	PARLGLYSKA	22298
HPV31	L2	11	366	PATINVSPTA	22299
HPV31	L2	8	250	PAYETVNA	22300
HPV31	L2	8	29	PSDVIPI	22301
HPV31	L2	10	373	PSTAVQSTSA	22302
HPV31	L2	11	373	PSTAVQSTSAV	22303
HPV31	L2	9	79	PSTVSEASI	22304
HPV31	L2	11	79	PSTVSEASIP	22305
HPV31	L2	10	161	PSVLQPTPA	22306
HPV31	L2	10	235	PTFLSAPKQL	22307
HPV31	L2	11	235	PTFLSAPKQLI	22308
HPV31	L2	8	156	PTFTDPSV	22309
HPV31	L2	9	156	PTFTDPSVL	22310
HPV31	L2	8	388	PTNTTVPL	22311
HPV31	L2	10	167	PTPAETSGHLL	22312
HPV31	L2	11	167	PTPAETSGHLL	22313
HPV31	L2	9	415	PTQVFPFPL	22314
HPV31	L2	10	415	PTQVFPPLA	22315
HPV31	L2	8	425	PTTPQVSI	22316
HPV31	L2	9	425	PTTPQVSIF	22317
HPV31	L2	10	425	PTTPQVSIFV	22318
HPV31	L2	8	127	PTTSGFDI	22319
HPV31	L2	9	127	PTTSGFDIA	22320
HPV31	L2	8	378	QSTSAVSA	22321
HPV31	L2	9	378	QSTSAVSAY	22322
HPV31	L2	10	378	QSTSAVSAYV	22323
HPV31	L2	9	303	QTLRTRSGA	22324
HPV31	L2	11	303	QTLRTRSGATI	22325
HPV31	L2	8	12	RASATQLY	22326
HPV31	L2	8	308	RSGATIGA	22327
HPV31	L2	10	308	RSGATIGARV	22328
HPV31	L2	9	5	RSTKRTKRA	22329
HPV31	L2	11	5	RSTKRTKRASA	22330
HPV31	L2	10	9	RTKRASATQL	22331

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	11	9	RTKRASATQLY	22332
HPV31	L2	8	306	RTRSGATI	22333
HPV31	L2	10	306	RTRSGATIGA	22334
HPV31	L2	9	239	SAPKQLITY	22335
HPV31	L2	11	14	SATQLYQTCKA	22336
HPV31	L2	8	341	SATITSTL	22337
HPV31	L2	10	384	SAYVPTNTTV	22338
HPV31	L2	10	324	SSINPAGESI	22339
HPV31	L2	8	181	SSISTHNY	22340
HPV31	L2	11	181	SSISTHNYEEI	22341
HPV31	L2	9	180	SSSISTHNY	22342
HPV31	L2	10	179	SSSISTHNY	22343
HPV31	L2	8	207	SSTPIPGV	22344
HPV31	L2	9	374	STAVQSTSA	22345
HPV31	L2	10	374	STAVQSTSAV	22346
HPV31	L2	8	396	STGFDIPI	22347
HPV31	L2	9	396	STGFDIPIF	22348
HPV31	L2	8	151	STHENPTF	22349
HPV31	L2	8	184	STHNYEEI	22350
HPV31	L2	10	184	STHNYEEIPM	22351
HPV31	L2	8	6	STKRTKRA	22352
HPV31	L2	10	6	STKRTKRASA	22353
HPV31	L2	8	346	STLNDGLY	22354
HPV31	L2	10	346	STLNDGLYDI	22355
HPV31	L2	11	346	STLNDGLYDIY	22356
HPV31	L2	11	208	STPIPGVRRPA	22357
HPV31	L2	10	76	STRPSTVSEA	22358
HPV31	L2	8	379	STSAVSAY	22359
HPV31	L2	9	379	STSAVSAYV	22360
HPV31	L2	8	80	STVSEASI	22361
HPV31	L2	10	80	STVSEASIPI	22362
HPV31	L2	8	137	TADTTPAI	22363
HPV31	L2	9	137	TADTTPAIL	22364
HPV31	L2	11	137	TADTTPAILDV	22365
HPV31	L2	8	375	TAVQSTSA	22366
HPV31	L2	9	375	TAVQSTSAV	22367
HPV31	L2	11	375	TAVQSTSAVSA	22368
HPV31	L2	8	380	TSASVAYV	22369
HPV31	L2	10	129	TSGFDIATTA	22370
HPV31	L2	11	266	TSINIAPDPDF	22371
HPV31	L2	9	288	TSRRNTVRY	22372
HPV31	L2	9	206	TSSTPIPGV	22373
HPV31	L2	8	345	TSTLNDGL	22374
HPV31	L2	9	345	TSTLNDGLY	22375
HPV31	L2	11	345	TSTLNDGLYDI	22376
HPV31	L2	11	148	TSVSTHIENTPF	22377

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BS8 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	8	136	TTADITPA	22378
HPV31	L2	9	136	TTADITPAI	22379
HPV31	L2	10	136	TTADITPAIL	22380
HPV31	L2	8	39	TTIADQIL	22381
HPV31	L2	10	39	TTIADQILRY	22382
HPV31	L2	8	140	ITPAILDV	22383
HPV31	L2	11	140	ITPAILDVTSV	22384
HPV31	L2	8	426	ITPQVSIF	22385
HPV31	L2	9	426	ITPQVSIFV	22386
HPV31	L2	8	128	ITSGFDIA	22387
HPV31	L2	11	128	ITSGFDIATTA	22388
HPV31	L2	9	344	TTSTLNDGL	22389
HPV31	L2	10	344	TTSTLNDGLY	22390
HPV31	L2	10	343	TTTSTLNDGL	22391
HPV31	L2	11	343	TTTSTLNDGLY	22392
HPV31	L2	9	391	TTVPLSTGF	22393
HPV31	L2	11	391	TTVPLSTGFDI	22394
HPV31	L2	11	383	VSAYVPTNTTV	22395
HPV31	L2	8	82	VSEASIP1	22396
HPV31	L2	9	93	VSIDPVGGL	22397
HPV31	L2	10	430	VSIFVDGGDF	22398
HPV31	L2	11	430	VSIFVDGGDFY	22399
HPV31	L2	9	106	VSLVEESGI	22400
HPV31	L2	10	106	VSLVEESGIV	22401
HPV31	L2	9	150	VSTHENPTF	22402
HPV31	L2	8	198	VSTNNENI	22403
HPV31	L2	8	455	VSYYFTDV	22404
HPV31	L2	10	455	VSYYFTDVS	22405
HPV31	L2	11	455	VSYYFTDVSVA	22406
HPV31	L2	8	356	YADTDFTV	22407
HPV31	L2	8	223	YSKATQQV	22408
HPV31	L2	10	223	YSKATQQVKV	22409
HPV31	L2	11	223	YSKATQQVKVI	22410
HPV31	L2	10	296	YSRLGNKQTL	22411
HPV31	L2	11	382	AAFLKNSQA	22412
HPV33	E1	8	90	AACSQSA	22413
HPV33	E1	11	90	AACSQSAEDV	22414
HPV33	E1	9	96	AAEDVVDR	22415
HPV33	E1	10	96	AAEDVVDRAA	22416
HPV33	E1	10	383	AAFLKNSQA	22417
HPV33	E1	9	104	AANPCRTSI	22418
HPV33	E1	8	65	AARALFNI	22419
HPV33	E1	8	83	CALKRKFA	22420
HPV33	E1	9	83	CALKRKFAA	22421
HPV33	E1	9	310	CALYWFRTA	22422
HPV33	E1	10	310	CALYWFR TAM	22423

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV33	E1	10	633	CSAGENTRSL	22424
HPV33	E1	8	276	CSKNRLTV	22425
HPV33	E1	9	276	CSKNRLTV	22426
HPV33	E1	11	276	CSKNRLTVAKL	22427
HPV33	E1	9	92	CSQSAEDV	22428
HPV33	E1	10	92	CSQSAEDVV	22429
HPV33	E1	9	226	CTDWCITGY	22430
HPV33	E1	11	226	CTDWCITGYGI	22431
HPV33	E1	9	14	CTGWFEVA	22432
HPV33	E1	10	14	CTGWFEVAV	22433
HPV33	E1	11	14	CTGWFEVAVI	22434
HPV33	E1	8	118	CTYRKRI	22435
HPV33	E1	11	118	CTYRKRIDEL	22436
HPV33	E1	10	508	DAKIGMDDV	22437
HPV33	E1	8	177	DSCENVTL	22438
HPV33	E1	11	177	DSCENVTLQEI	22439
HPV33	E1	8	365	DSDIAYYY	22440
HPV33	E1	9	365	DSDIAYYYA	22441
HPV33	E1	11	365	DSDIAYYYAQL	22442
HPV33	E1	10	167	DSEVSCETNV	22443
HPV33	E1	9	42	DSGTDLLEF	22444
HPV33	E1	10	42	DSGTDLLEFI	22445
HPV33	E1	9	130	DSGYGNTV	22446
HPV33	E1	9	53	DSMENSQA	22447
HPV33	E1	8	377	DSNSNAAA	22448
HPV33	E1	9	377	DSNSNAAAF	22449
HPV33	E1	10	377	DSNSNAAAFI	22450
HPV33	E1	11	566	DSRWPLYHSRL	22451
HPV33	E1	8	62	DTEAARAL	22452
HPV33	E1	9	62	DTEAARALF	22453
HPV33	E1	11	62	DTEAARALFI	22454
HPV33	E1	9	64	EAAARALFI	22455
HPV33	E1	8	206	EAYGISFM	22456
HPV33	E1	10	206	EAYGISFMEL	22457
HPV33	E1	11	206	EAYGISFMELV	22458
HPV33	E1	9	148	ESQNGDTNL	22459
HPV33	E1	11	160	ESSQGVGDDSEV	22460
HPV33	E1	10	38	ETADDSGTDL	22461
HPV33	E1	11	38	ETADDSGTDLI	22462
HPV33	E1	11	295	ETCMVIEPKL	22463
HPV33	E1	10	173	ETNVDSCEV	22464
HPV33	E1	9	139	ETQQMVOVQV	22465
HPV33	E1	8	89	FAACSQA	22466
HPV33	E1	9	89	FAACSQA	22467
HPV33	E1	8	606	FSRTWCKL	22468
HPV33	E1	10	606	FSRTWCKLDL	22469

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	11	606	FSRTWCKLDLI	22470
HPV33	E1	8	446	FTAFLGAF	22471
HPV33	E1	11	446	FTAFLGAFKKF	22472
HPV33	E1	10	451	GAFKKFLKGI	22473
HPV33	E1	9	9	GAGMGCTGW	22474
HPV33	E1	10	9	GAGMGCTGWF	22475
HPV33	E1	8	44	GTDLLEFI	22476
HPV33	E1	8	564	GTDSRWPY	22477
HPV33	E1	9	564	GTDSRWPYL	22478
HPV33	E1	10	327	GTTPEWIDRL	22479
HPV33	E1	8	341	HSFNDNIF	22480
HPV33	E1	10	341	HSFNDNIFDL	22481
HPV33	E1	10	251	HSLYTHLQCL	22482
HPV33	E1	9	573	HSRLTVFEF	22483
HPV33	E1	9	192	HSSNTKANI	22484
HPV33	E1	10	192	HSSNTKANIL	22485
HPV33	E1	11	192	HSSNTKANILY	22486
HPV33	E1	8	368	IAYYYAQL	22487
HPV33	E1	9	368	IAYYYAQLA	22488
HPV33	E1	10	492	ISCVNSKSHF	22489
HPV33	E1	11	492	ISCVNSKSHFW	22490
HPV33	E1	11	322	ISDVQGTPEW	22491
HPV33	E1	9	32	ISEDEDETA	22492
HPV33	E1	10	210	ISFMELVRPF	22493
HPV33	E1	9	538	ISIDVKHRA	22494
HPV33	E1	10	538	ISIDVKHRAL	22495
HPV33	E1	11	538	ISIDVKHRALV	22496
HPV33	E1	9	236	ISPSVAESL	22497
HPV33	E1	11	236	ISPSVAESKV	22498
HPV33	E1	8	628	ISTFKCSA	22499
HPV33	E1	9	520	ISWTYIDDDY	22500
HPV33	E1	10	520	ISWTYIDDDYM	22501
HPV33	E1	10	231	ITGYGISPSV	22502
HPV33	E1	11	231	ITGYGISPSVA	22503
HPV33	E1	9	407	KAERKMSI	22504
HPV33	E1	8	197	KANILYKF	22505
HPV33	E1	11	197	KANILYKFKEA	22506
HPV33	E1	10	463	KSCMLICGPA	22507
HPV33	E1	10	220	KSDKTCTDW	22508
HPV33	E1	8	603	KSFFSRTW	22509
HPV33	E1	11	603	KSFFSRTWCKL	22510
HPV33	E1	9	498	KSHFWLQPL	22511
HPV33	E1	8	387	KSNSQAKI	22512
HPV33	E1	9	387	KSNSQAKIV	22513
HPV33	E1	8	476	KSYFGMSL	22514
HPV33	E1	9	476	KSYFGMSLI	22515

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	11	476	KSYFGMSLIQF	22516
HPV33	E1	8	425	KTNDGGNW	22517
HPV33	E1	11	425	KTNDGGNWRPI	22518
HPV33	E1	9	223	KTCTDWCI	22519
HPV33	E1	8	375	LADSNNA	22520
HPV33	E1	9	375	LADSNNA	22521
HPV33	E1	10	375	LADSNNA	22522
HPV33	E1	11	375	LADSNNA	22523
HPV33	E1	8	506	LSDAKIGM	22524
HPV33	E1	9	506	LSDAKIGMI	22525
HPV33	E1	8	350	LSEMVQWA	22526
HPV33	E1	9	350	LSEMVQWAY	22527
HPV33	E1	8	291	LSIPETCM	22528
HPV33	E1	9	291	LSIPETCMV	22529
HPV33	E1	10	291	LSIPETCMVI	22530
HPV33	E1	8	260	LTCDRGII	22531
HPV33	E1	9	260	LTCDRGIII	22532
HPV33	E1	10	260	LTCDRGIIIL	22533
HPV33	E1	11	260	LTCDRGIIILL	22534
HPV33	E1	8	362	LTDDSDIA	22535
HPV33	E1	9	362	LTDDSDIAY	22536
HPV33	E1	10	362	LTDDSDIAYY	22537
HPV33	E1	11	362	LTDDSDIAYYY	22538
HPV33	E1	10	281	LTVAKLMSNL	22539
HPV33	E1	11	281	LTVAKLMSNLL	22540
HPV33	E1	10	576	LTVFEFKNPF	22541
HPV33	E1	8	336	LTVLQHSF	22542
HPV33	E1	10	1	MADPEGTNGA	22543
HPV33	E1	11	481	MSLIQFLKGCV	22544
HPV33	E1	8	562	NAGTDSRW	22545
HPV33	E1	10	562	NAGTDSRWPY	22546
HPV33	E1	11	562	NAGTDSRWPYL	22547
HPV33	E1	8	531	NALDGNEI	22548
HPV33	E1	10	531	NALDGNEISI	22549
HPV33	E1	10	80	NAVCAALKRK	22550
HPV33	E1	11	80	NAVCAALKRKFA	22551
HPV33	E1	9	57	NSIQADTEA	22552
HPV33	E1	10	57	NSIQADTEAA	22553
HPV33	E1	8	496	NSKSHFWL	22554
HPV33	E1	11	496	NSKSHFWLQPL	22555
HPV33	E1	8	379	NSNAAAFL	22556
HPV33	E1	9	135	NTEVETQQM	22557
HPV33	E1	10	135	NTEVETQQMV	22558
HPV33	E1	9	473	NTGKSYFGM	22559
HPV33	E1	11	473	NTGKSYFGMSL	22560
HPV33	E1	8	195	NTKANILY	22561

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	10	195	NTKANILYKF	22562
HPV33	E1	10	560	NTNAGTDSRW	22563
HPV33	E1	8	471	PANTGKSY	22564
HPV33	E1	9	471	PANTGKSYF	22565
HPV33	E1	11	471	PANTGKSYFGM	22566
HPV33	E1	9	238	PSVAESLKV	22567
HPV33	E1	10	238	PSVAESLKVLI	22568
HPV33	E1	11	238	PSVAESLKVLI	22569
HPV33	E1	9	60	QADTEAARA	22570
HPV33	E1	10	60	QADTEAARAL	22571
HPV33	E1	11	60	QADTEAARALF	22572
HPV33	E1	10	391	QAKIVKDCGI	22573
HPV33	E1	11	391	QAKIVKDCGIM	22574
HPV33	E1	8	94	QSAEDVV	22575
HPV33	E1	11	94	QSAEDVVVDRA	22576
HPV33	E1	8	308	QTCALYWF	22577
HPV33	E1	11	308	QTCALYWFRTA	22578
HPV33	E1	10	103	RAANPCRTSI	22579
HPV33	E1	11	545	'RALVQLKCPPL	22580
HPV33	E1	8	306	RSQTCALY	22581
HPV33	E1	9	306	RSQTCALYW	22582
HPV33	E1	10	306	RSQTCALYWF	22583
HPV33	E1	10	316	RTAMSNISDV	22584
HPV33	E1	8	608	RTWCKLDL	22585
HPV33	E1	9	608	RTWCKLDLI	22586
HPV33	E1	10	95	SAEDVVVDRA	22587
HPV33	E1	11	95	SAEDVVVDRAA	22588
HPV33	E1	9	634	SAGENTRSL	22589
HPV33	E1	10	161	SSGVGDDSEV	22590
HPV33	E1	8	193	SSNTKANI	22591
HPV33	E1	9	193	SSNTKANIL	22592
HPV33	E1	10	193	SSNTKANILY	22593
HPV33	E1	9	39	TADDSGTDL	22594
HPV33	E1	10	39	TADDSGTDLL	22595
HPV33	E1	10	447	TAFGLGAFKKF	22596
HPV33	E1	11	447	TAFGLGAFKKFL	22597
HPV33	E1	9	317	TAMSNISDV	22598
HPV33	E1	8	224	TSCTDWCI	22599
HPV33	E1	11	224	TSCTDWCITGY	22600
HPV33	E1	11	110	TSINKNKECTY	22601
HPV33	E1	9	328	TTPEWIDRL	22602
HPV33	E1	11	328	TTPEWIDRLTV	22603
HPV33	E1	8	240	VAESLKVLI	22604
HPV33	E1	9	240	VAESLKVLI	22605
HPV33	E1	8	283	VAKLMSNL	22606
HPV33	E1	9	283	VAKLMSNLI	22607

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	11	283	VAKLMSNLLSI	22608
HPV33	E1	9	182	VTLQEISNV	22609
HPV33	E1	10	182	VTLQEISNVL	22610
HPV33	E1	8	517	VTPISWTY	22611
HPV33	E1	9	517	VTPISWTYI	22612
HPV33	E1	8	522	WTYIDDDYM	22613
HPV33	E1	11	522	WTYIDDDYMRNA	22614
HPV33	E1	8	595	YAINDENW	22615
HPV33	E1	11	595	YAINDENWKSF	22616
HPV33	E1	11	372	YAQLADSNNA	22617
HPV33	E2	9	223	AAAKRRRPA	22618
HPV33	E2	8	224	AAKRRRPA	22619
HPV33	E2	9	175	AAKYSKTQM	22620
HPV33	E2	10	175	AAKYSKTQMW	22621
HPV33	E2	9	64	ASKTKAFQV	22622
HPV33	E2	10	64	ASKTKAFQVI	22623
HPV33	E2	11	258	ATNCTNKQRTV	22624
HPV33	E2	11	245	CADPALDNRTA	22625
HPV33	E2	10	40	CALLYTAKQM	22626
HPV33	E2	8	269	CSSNVAPI	22627
HPV33	E2	9	269	CSSNVAPIV	22628
HPV33	E2	11	269	CSSNVAPIVHIL	22629
HPV33	E2	8	145	CTMVTGKV	22630
HPV33	E2	10	145	CTMVTGKVDY	22631
HPV33	E2	11	145	CTMVTGKVDYI	22632
HPV33	E2	8	261	CTNKQRTV	22633
HPV33	E2	10	174	DAAKYSKTQM	22634
HPV33	E2	11	174	DAAKYSKTQMW	22635
HPV33	E2	9	235	DTAQPLTKL	22636
HPV33	E2	10	235	DTAQPLTKLF	22637
HPV33	E2	10	143	DTCTMVTGKV	22638
HPV33	E2	9	232	DTTDTAQPL	22639
HPV33	E2	11	20	EADKTDLP SQI	22640
HPV33	E2	8	282	ESNSLKCL	22641
HPV33	E2	10	282	ESNSLKCLRY	22642
HPV33	E2	8	80	ETLSKSQY	22643
HPV33	E2	8	51	FSHLCHQV	22644
HPV33	E2	9	51	FSHLCHQVV	22645
HPV33	E2	9	336	GTVKIPPTV	22646
HPV33	E2	11	336	GTVKIPPTVQI	22647
HPV33	E2	8	4	ISARLNAV	22648
HPV33	E2	8	346	ISTGFMTL	22649
HPV33	E2	9	204	ISTTETADI	22650
HPV33	E2	8	68	KAFQVIEL	22651
HPV33	E2	10	68	KAFQVIELQM	22652
HPV33	E2	11	68	KAFQVIELQMA	22653

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	9	84	KSQYSTSQW	22654
HPV33	E2	11	84	KSQYSTSQWTL	22655
HPV33	E2	8	23	KTDLPSTQI	22656
HPV33	E2	11	23	KTDLPSTQIEHW	22657
HPV33	E2	8	66	KTKAFQVI	22658
HPV33	E2	10	66	KTKAFQVIEL	22659
HPV33	E2	9	180	KTMWEVHV	22660
HPV33	E2	8	63	LASKTKAF	22661
HPV33	E2	10	63	LASKTKAFQV	22662
HPV33	E2	11	63	LASKTKAFQVI	22663
HPV33	E2	11	82	LKSQYSTSQW	22664
HPV33	E2	10	240	LTKLFCADPA	22665
HPV33	E2	11	240	LTKLFCADPAL	22666
HPV33	E2	11	77	MALETLSKSQY	22667
HPV33	E2	8	9	NAVQEKIL	22668
HPV33	E2	10	9	NAVQEKILDL	22669
HPV33	E2	11	9	NAVQEKILDLY	22670
HPV33	E2	9	315	NSKNGIVTV	22671
HPV33	E2	11	315	NSKNGIVTVTF	22672
HPV33	E2	8	284	NSLKCLRY	22673
HPV33	E2	10	284	NSLKCLRYRL	22674
HPV33	E2	8	127	NTMDYTNW	22675
HPV33	E2	11	127	NTMDYTNWGEI	22676
HPV33	E2	8	230	PADTTDTA	22677
HPV33	E2	11	230	PADTTDTAQPL	22678
HPV33	E2	8	248	PALDNRTA	22679
HPV33	E2	11	248	PALDNRTARTA	22680
HPV33	E2	10	60	PSSLASKTKA	22681
HPV33	E2	11	60	PSSLASKTKAF	22682
HPV33	E2	9	27	PSQIEHWKL	22683
HPV33	E2	10	27	PSQIEHWKLI	22684
HPV33	E2	9	196	PTSISSNQI	22685
HPV33	E2	9	342	PTVQISTGF	22686
HPV33	E2	10	342	PTVQISTGFM	22687
HPV33	E2	10	222	QAAAKRRRPA	22688
HPV33	E2	11	213	QTDNDNRPPQA	22689
HPV33	E2	8	96	QTSLEVWL	22690
HPV33	E2	8	266	RIVCSSNV	22691
HPV33	E2	9	266	RIVCSSNVA	22692
HPV33	E2	11	266	RIVCSSNVAPI	22693
HPV33	E2	11	5	SARLNAVQEKI	22694
HPV33	E2	9	301	SSMSSTWHW	22695
HPV33	E2	11	200	SSNQISTTETA	22696
HPV33	E2	8	270	SSNVAPIV	22697
HPV33	E2	10	270	SSNVAPIVHL	22698
HPV33	E2	8	205	STTETADI	22699

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	10	45	TAKQMGFSHL	22700
HPV33	E2	8	236	TAQPLTKL	22701
HPV33	E2	9	236	TAQPLTKLF	22702
HPV33	E2	11	236	TAQPLTKLFCA	22703
HPV33	E2	11	310	TSDNKNKNGI	22704
HPV33	E2	8	197	TSISSNQI	22705
HPV33	E2	11	89	TSQWTLQQTSL	22706
HPV33	E2	8	233	TTDTAQPL	22707
HPV33	E2	11	233	TTDTAQPLTKL	22708
HPV33	E2	8	326	VTEQQQQM	22709
HPV33	E2	9	326	VTEQQQQMF	22710
HPV33	E2	10	326	VTEQQQQMFL	22711
HPV33	E2	11	323	VTFVTEQQQQM	22712
HPV33	E2	8	148	VTGKVDYI	22713
HPV33	E2	10	148	VTGKVDYIGM	22714
HPV33	E2	11	148	VTGKVDYIGMY	22715
HPV33	E2	8	92	WTLQQTSL	22716
HPV33	E2	10	92	WTLQQTSLV	22717
HPV33	E2	11	92	WTLQQTSLVW	22718
HPV33	E2	9	178	YSKTQMWVEV	22719
HPV33	E2	11	178	YSKTQMWVEHV	22720
HPV33	E2	8	300	YSSMSSTW	22721
HPV33	E2	10	300	YSSMSSTWIW	22722
HPV33	E2	8	87	YSTSQWTL	22723
HPV33	E2	8	44	YTAKQMGF	22724
HPV33	E2	11	44	YTAKQMGFSL	22725
HPV33	E2	8	131	YTNWGEIY	22726
HPV33	E2	9	131	YTNWGEIYI	22727
HPV33	E2	10	131	YTNWGEIYII	22728
HPV33	E5	8	44	GSPLKIFF	22729
HPV33	E5	10	44	GSPLKIFFCY	22730
HPV33	E5	11	44	GSPLKIFFCYL	22731
HPV33	E5	8	26	ISTYAWLL	22732
HPV33	E5	9	26	ISTYAWLLV	22733
HPV33	E5	10	26	ISTYAWLLVL	22734
HPV33	E5	11	26	ISTYAWLLVLV	22735
HPV33	E5	8	24	LSISTYAW	22736
HPV33	E5	9	24	LSISTYAWL	22737
HPV33	E5	10	24	LSISTYAWLL	22738
HPV33	E5	11	24	LSISTYAWLLV	22739
HPV33	E5	8	15	LSLLLRPL	22740
HPV33	E5	9	15	LSLLLRPLI	22741
HPV33	E5	10	15	LSLLLRPLIL	22742
HPV33	E5	8	27	STYAWLLV	22743
HPV33	E5	9	27	STYAWLLVL	22744
HPV33	E5	10	27	STYAWLLVLV	22745

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E5	11	27	STYAWLLVLVL	22746
HPV33	E5	8	29	YAWLLVLV	22747
HPV33	E5	9	29	YAWLLVLV	22748
HPV33	E5	10	29	YAWLLVLVLL	22749
HPV33	E5	11	29	YAWLLVLVLL	22750
HPV33	E6	9	4	DTEEKPRIL	22751
HPV33	E6	9	20	ETIHNIEL	22752
HPV33	E6	8	47	FADLTVVY	22753
HPV33	E6	8	45	FAFADLTV	22754
HPV33	E6	9	45	FAFADLTVV	22755
HPV33	E6	10	45	FAFADLTVVY	22756
HPV33	E6	9	73	ISEYRHYNY	22757
HPV33	E6	11	73	ISEYRHYNYSV	22758
HPV33	E6	10	128	ISGRWAGRCA	22759
HPV33	E6	11	128	ISGRWAGRCAA	22760
HPV33	E6	10	70	LSKISEYRHY	22761
HPV33	E6	11	50	LTVVYREGNPF	22762
HPV33	E6	11	86	NTLEQTVKKPL	22763
HPV33	E6	10	17	QALETTIHNI	22764
HPV33	E6	10	90	QTVKKPLNEI	22765
HPV33	E6	11	90	QTVKKPLNEIL	22766
HPV33	E6	8	39	RSEVYDFA	22767
HPV33	E6	9	39	RSEVYDFAF	22768
HPV33	E6	10	39	RSEVYDFAFA	22769
HPV33	E6	8	141	RSRRRETA	22770
HPV33	E6	9	141	RSRRRETAL	22771
HPV33	E6	9	10	RTLHDLQQA	22772
HPV33	E6	10	10	RTLHDLQCAL	22773
HPV33	E6	8	21	TTIHNIEL	22774
HPV33	E6	11	21	TTIHNIELQCV	22775
HPV33	E6	9	132	WAGRCAACW	22776
HPV33	E6	8	81	YSVYGNL	22777
HPV33	E7	10	73	ASDLRTIQQL	22778
HPV33	E7	11	73	ASDLRTIQQLL	22779
HPV33	E7	8	48	ATADYYIV	22780
HPV33	E7	9	30	DSSDEDEGL	22781
HPV33	E7	11	85	GTNIVCPTCA	22782
HPV33	E7	9	59	HTCNTTVRL	22783
HPV33	E7	11	59	HTCNTTVRLCV	22784
HPV33	E7	11	28	LSDSDEDEGL	22785
HPV33	E7	10	70	NSTASDLRTI	22786
HPV33	E7	8	62	NTTVRLCV	22787
HPV33	E7	8	47	PATADYYI	22788
HPV33	E7	9	47	PATADYYIV	22789
HPV33	E7	10	19	PTDLYCYEQL	22790
HPV33	E7	8	6	PTLKEYVL	22791

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E7	10	6	PTLKEYVLDL	22792
HPV33	E7	11	6	PTLKEYVLDLY	22793
HPV33	E7	9	44	QAQPATADY	22794
HPV33	E7	10	44	QAQPATADYY	22795
HPV33	E7	11	44	QAQPATADYYI	22796
HPV33	E7	8	77	RTIQQLLM	22797
HPV33	E7	11	77	RTIQQLLMGTV	22798
HPV33	E7	8	31	SSDEDEGL	22799
HPV33	E7	9	71	STASDLRTI	22800
HPV33	E7	8	72	TASDLRTI	22801
HPV33	E7	11	72	TASDLRTIQQL	22802
HPV33	E7	11	63	TTVRLCVNSTA	22803
HPV33	E7	11	55	VTCCHTCNTTV	22804
HPV33	L1	10	179	AAFANDCPPL	22805
HPV33	L1	11	482	AAPTSTRITSSA	22806
HPV33	L1	8	284	ASIQSSAF	22807
HPV33	L1	9	284	ASIQSSAFF	22808
HPV33	L1	9	411	ASLQDTYRF	22809
HPV33	L1	10	411	ASLQDTYRFV	22810
HPV33	L1	8	9	ATVYLPV	22811
HPV33	L1	10	9	ATVYLPVPV	22812
HPV33	L1	10	345	CTQVTSdsty	22813
HPV33	L1	9	351	DSTYKNENF	22814
HPV33	L1	8	129	DTETGNKY	22815
HPV33	L1	9	202	DTGFGCMDF	22816
HPV33	L1	8	95	DTQRLVWA	22817
HPV33	L1	10	95	DTQRLVWACV	22818
HPV33	L1	8	335	DTTRSTNM	22819
HPV33	L1	10	335	DTTRSTNMTL	22820
HPV33	L1	10	415	DTYRFVTSQA	22821
HPV33	L1	11	415	DTYRFVTSQAI	22822
HPV33	L1	9	8	EATVYLPV	22823
HPV33	L1	11	8	EATVYLPVPV	22824
HPV33	L1	8	269	EAVPDDL	22825
HPV33	L1	9	269	EAVPDDL	22826
HPV33	L1	9	303	ESQLFNKPY	22827
HPV33	L1	10	303	ESQLFNKPYW	22828
HPV33	L1	11	303	ESQLFNKPYWL	22829
HPV33	L1	8	454	FSADLDQF	22830
HPV33	L1	10	454	FSADLDQFPL	22831
HPV33	L1	9	50	FSIKNPTNA	22832
HPV33	L1	8	141	GADNRECL	22833
HPV33	L1	10	141	GADNRECLSM	22834
HPV33	L1	8	279	GSGTTASI	22835
HPV33	L1	10	297	GSMVTSESQ	22836
HPV33	L1	11	297	GSMVTSESQLF	22837

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	8	38	GSSRLAV	22838
HPV33	L1	9	226	GSTCKYPDY	22839
HPV33	L1	10	226	GSTCKYPDYL	22840
HPV33	L1	11	265	GTLGEAVPDDL	22841
HPV33	L1	10	281	GTTASIQSSA	22842
HPV33	L1	11	281	GTTASIQSSAF	22843
HPV33	L1	8	391	HAMNPDIL	22844
HPV33	L1	11	391	HAMNPDILEDW	22845
HPV33	L1	10	118	ISGIPLLNKF	22846
HPV33	L1	9	474	KAKPKLKRA	22847
HPV33	L1	10	474	KAKPKLKRAA	22848
HPV33	L1	8	217	KSDVPIDI	22849
HPV33	L1	10	211	KTLQANKSDV	22850
HPV33	L1	8	43	LAVGHPYF	22851
HPV33	L1	10	43	LAVGHPYFSI	22852
HPV33	L1	10	148	LSMDYKQTQL	22853
HPV33	L1	8	382	LTAEVMTY	22854
HPV33	L1	9	382	LTAEVMTYI	22855
HPV33	L1	11	382	LTAEVMTYIHA	22856
HPV33	L1	9	405	LTPPPSASL	22857
HPV33	L1	9	1	MSVWRPSEA	22858
HPV33	L1	11	1	MSVWRPSEATV	22859
HPV33	L1	10	237	MTSEPYGDSL	22860
HPV33	L1	11	237	MTSEPYGDSL	22861
HPV33	L1	11	387	MTYIHAMNPDI	22862
HPV33	L1	11	178	NAAPANDCPPL	22863
HPV33	L1	10	57	NAKLLVPKV	22864
HPV33	L1	9	192	NTIIEDGDM	22865
HPV33	L1	10	192	NTIIEDGDMV	22866
HPV33	L1	8	181	PANDCPPL	22867
HPV33	L1	10	181	PANDCPPLEL	22868
HPV33	L1	11	181	PANDCPPLELI	22869
HPV33	L1	9	409	PSASLQDITY	22870
HPV33	L1	11	409	PSASLQDITYRF	22871
HPV33	L1	8	6	PSEATVYL	22872
HPV33	L1	11	6	PSEATVYLPV	22873
HPV33	L1	10	165	PTGEHWGKGV	22874
HPV33	L1	11	165	PTGEHWGKGVA	22875
HPV33	L1	8	55	PTNAKKLL	22876
HPV33	L1	9	55	PTNAKKLLV	22877
HPV33	L1	8	293	PTPSGSMV	22878
HPV33	L1	9	484	PTSTRITSSA	22879
HPV33	L1	10	470	QAGLKAKPKL	22880
HPV33	L1	9	423	QAITCQKTV	22881
HPV33	L1	9	214	QANKSDVPI	22882
HPV33	L1	11	214	QANKSDVPIDI	22883

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	8	263	RAGTLGEA	22884
HPV33	L1	9	263	RAGTLGEAV	22885
HPV33	L1	9	315	RAQGHNGI	22886
HPV33	L1	11	315	RAQGHNNIGW	22887
HPV33	L1	11	338	RSTNMTLCTQV	22888
HPV33	L1	8	30	RTSIYYA	22889
HPV33	L1	10	488	RTSSAKRKKV	22890
HPV33	L1	9	455	SADLDQFPL	22891
HPV33	L1	11	289	SAFPTPSGSM	22892
HPV33	L1	8	410	SASLQDTY	22893
HPV33	L1	10	410	SASLQDITYRF	22894
HPV33	L1	11	410	SASLQDITYRFV	22895
HPV33	L1	8	490	SSAKRKKV	22896
HPV33	L1	11	39	SSRLAVGHPY	22897
HPV33	L1	8	227	STCKYPDY	22898
HPV33	L1	9	227	STCKYPDYL	22899
HPV33	L1	11	227	STCKYPDYLKM	22900
HPV33	L1	11	23	STDEYVSRISI	22901
HPV33	L1	10	339	STNMTLCTQV	22902
HPV33	L1	8	352	STYKNENF	22903
HPV33	L1	11	352	STYKNENFKEY	22904
HPV33	L1	8	383	TAEVMTYI	22905
HPV33	L1	10	383	TAEVMTYIHA	22906
HPV33	L1	11	383	TAEVMTYIHAM	22907
HPV33	L1	8	283	TASIQSSA	22908
HPV33	L1	9	283	TASIQSSAF	22909
HPV33	L1	10	283	TASIQSSAFF	22910
HPV33	L1	11	349	TSDSTYKNENF	22911
HPV33	L1	9	238	TSEPYGDSL	22912
HPV33	L1	10	238	TSEPYGDSL	22913
HPV33	L1	11	238	TSEPYGDSLFF	22914
HPV33	L1	11	301	TSEQLFNKPY	22915
HPV33	L1	11	89	TSFYNPDTQRL	22916
HPV33	L1	11	421	TSQAITCQKTV	22917
HPV33	L1	9	489	TSSAKRKKV	22918
HPV33	L1	8	485	TSTRTSSA	22919
HPV33	L1	9	282	TTASIQSSA	22920
HPV33	L1	10	282	TTASIQSSAF	22921
HPV33	L1	11	282	TTASIQSSAFF	22922
HPV33	L1	9	336	TTRSTNMTL	22923
HPV33	L1	9	174	VACTNAAPA	22924
HPV33	L1	8	66	VGLQYRV	22925
HPV33	L1	9	66	VGLQYRVF	22926
HPV33	L1	11	66	VGLQYRVFRV	22927
HPV33	L1	10	18	VSKVSTDEY	22928
HPV33	L1	11	18	VSKVSTDEYV	22929

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	8	28	VSRTSIYY	22930
HPV33	L1	9	28	VSRTSIYY	22931
HPV33	L1	10	28	VSRTSIYYA	22932
HPV33	L1	8	380	VTLTAEV	22933
HPV33	L1	10	380	VTLTAEVMTY	22934
HPV33	L1	11	380	VTLTAEVMTYI	22935
HPV33	L1	8	300	VTSEQLF	22936
HPV33	L1	8	101	WACVGLI	22937
HPV33	L1	8	36	YAGSSRL	22938
HPV33	L1	9	36	YAGSSRLA	22939
HPV33	L1	10	36	YAGSSRLAV	22940
HPV33	L1	8	443	YTFWEVDL	22941
HPV33	L2	8	81	AAIPLQI	22942
HPV33	L2	9	23	ATGTCPPDV	22943
HPV33	L2	10	23	ATGTCPPDVI	22944
HPV33	L2	11	308	ATLKTRSGKI	22945
HPV33	L2	10	14	ATQLYQTCKA	22946
HPV33	L2	8	385	ATRTSNV	22947
HPV33	L2	10	385	ATRTSNVSI	22948
HPV33	L2	8	101	DSSIVSLI	22949
HPV33	L2	11	206	DSSNVTSTPI	22950
HPV33	L2	8	431	DIIVVDGA	22951
HPV33	L2	10	431	DIIVVDGADF	22952
HPV33	L2	11	431	DIIVVDGADFV	22953
HPV33	L2	10	264	DTLQFQHSI	22954
HPV33	L2	10	401	DTPVMSGPDI	22955
HPV33	L2	9	350	DTSTSSYSI	22956
HPV33	L2	9	136	DTTPAIINV	22957
HPV33	L2	10	95	DTVGPLDSSI	22958
HPV33	L2	11	95	DTVGPLDSSIV	22959
HPV33	L2	9	115	EAGAPASI	22960
HPV33	L2	8	176	EASGHFIF	22961
HPV33	L2	9	258	ESFDPEDTL	22962
HPV33	L2	11	258	ESFDPEDTLQF	22963
HPV33	L2	11	149	ESSIQITISHL	22964
HPV33	L2	9	110	ETSFIEAGA	22965
HPV33	L2	11	110	ETSFIEAGAPA	22966
HPV33	L2	9	384	FATRTSNV	22967
HPV33	L2	11	384	FATRTSNVSI	22968
HPV33	L2	8	301	FSRVGQKA	22969
HPV33	L2	10	301	FSRVGQKATL	22970
HPV33	L2	11	183	FSSPTVSTQSY	22971
HPV33	L2	8	460	FTDVRVA	22972
HPV33	L2	11	163	FTEPSVLHPPA	22973
HPV33	L2	10	437	GADFVLIIPSY	22974
HPV33	L2	11	437	GADFVLIHPSYF	22975

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	10	319	GARIHYYQDL	22976
HPV33	L2	8	64	GSGGRITGY	22977
HPV33	L2	9	64	GSGGRITGYV	22978
HPV33	L2	11	64	GSGGRITGYVPI	22979
HPV33	L2	10	62	GSGGRITGY	22980
HPV33	L2	11	62	GSGGRITGYV	22981
HPV33	L2	10	48	GSLGVFFGGL	22982
HPV33	L2	8	218	GSRPVARL	22983
HPV33	L2	10	218	GSRPVARLGL	22984
HPV33	L2	11	218	GSRPVARLGLY	22985
HPV33	L2	8	37	GSTIADQI	22986
HPV33	L2	9	37	GSTIADQIL	22987
HPV33	L2	11	37	GSTIADQILKY	22988
HPV33	L2	8	25	GTCPPDVI	22989
HPV33	L2	11	25	GTCPPDVIPKV	22990
HPV33	L2	8	75	GTDPTAA	22991
HPV33	L2	9	75	GTDPTAAI	22992
HPV33	L2	11	75	GTDPTAAIPL	22993
HPV33	L2	8	374	HTPMQHSY	22994
HPV33	L2	11	374	HTPMQHSYSTF	22995
HPV33	L2	8	336	HTVPNEQY	22996
HPV33	L2	10	336	HTVPNEQYEL	22997
HPV33	L2	8	297	HTVRFSRV	22998
HPV33	L2	8	40	IADQILKY	22999
HPV33	L2	11	40	IADQILKYGSL	23000
HPV33	L2	8	285	IALHRPAI	23001
HPV33	L2	9	273	ISPAPDPDF	23002
HPV33	L2	10	273	ISPAPDPDFL	23003
HPV33	L2	10	424	ISPFPPFDTI	23004
HPV33	L2	11	424	ISPFPPFDTIV	23005
HPV33	L2	9	155	ISTHLNPTF	23006
HPV33	L2	8	292	ITSRRHTV	23007
HPV33	L2	10	292	ITSRRHTVRF	23008
HPV33	L2	8	250	ITYDNPAF	23009
HPV33	L2	11	250	ITYDNPAFESF	23010
HPV33	L2	10	22	KATGTCPPDV	23011
HPV33	L2	11	22	KATGTCPPDVI	23012
HPV33	L2	8	311	KTRSGKQI	23013
HPV33	L2	10	311	KTRSGKQIGA	23014
HPV33	L2	11	328	LSPVPLDHTV	23015
HPV33	L2	8	243	LTSPHKLI	23016
HPV33	L2	10	243	LTSPHKLITY	23017
HPV33	L2	10	405	MSGPDIPSPL	23018
HPV33	L2	11	405	MSGPDIPSPLF	23019
HPV33	L2	8	397	NTGFDTPV	23020
HPV33	L2	9	397	NTGFDTPVM	23021

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	8	231	NTQQVKVV	23022
HPV33	L2	11	231	NTQQKVVDPA	23023
HPV33	L2	8	174	PAEASGHF	23024
HPV33	L2	9	174	PAEASGHFI	23025
HPV33	L2	10	174	PAEASGHFIF	23026
HPV33	L2	10	240	PAFLTSPHKL	23027
HPV33	L2	11	240	PAFLTSPHKL	23028
HPV33	L2	9	139	PAIINVSSV	23029
HPV33	L2	10	290	PAITRRHIV	23030
HPV33	L2	10	172	PAPAEASGHF	23031
HPV33	L2	11	172	PAPAEASGHFI	23032
HPV33	L2	8	275	PAPDPDFL	23033
HPV33	L2	10	275	PAPDPDFLDI	23034
HPV33	L2	11	275	PAPDPDFLDII	23035
HPV33	L2	11	119	PAPSIPTPSGF	23036
HPV33	L2	10	126	PSGFDVTSTA	23037
HPV33	L2	9	121	PSIPTPSGF	23038
HPV33	L2	11	121	PSIPTPSGFDV	23039
HPV33	L2	11	411	PSPLFTSSPF	23040
HPV33	L2	8	166	PSVLHPPA	23041
HPV33	L2	10	166	PSVLHPPAPA	23042
HPV33	L2	10	79	PTAAIPLQPI	23043
HPV33	L2	8	161	PTFTEPSV	23044
HPV33	L2	9	161	PTFTEPSVL	23045
HPV33	L2	8	124	PTPSGFDV	23046
HPV33	L2	9	416	PTSSPFVPI	23047
HPV33	L2	8	186	PTVSTQSY	23048
HPV33	L2	11	186	PTVSTQSYENI	23049
HPV33	L2	8	191	QSYENIPM	23050
HPV33	L2	11	191	QSYENIPMDTF	23051
HPV33	L2	11	153	QTIHSTHLNPTF	23052
HPV33	L2	8	11	RASATQLY	23053
HPV33	L2	8	313	RSKGQIGA	23054
HPV33	L2	10	313	RSKGQIGARI	23055
HPV33	L2	8	5	RSTRKRKA	23056
HPV33	L2	10	5	RSTRKRKASA	23057
HPV33	L2	9	388	RTSNVSIPL	23058
HPV33	L2	8	134	SADITPAI	23059
HPV33	L2	9	134	SADITPAII	23060
HPV33	L2	11	134	SADITPAIINV	23061
HPV33	L2	11	13	SATQLYQTCKA	23062
HPV33	L2	10	150	SSIQTISTHIL	23063
HPV33	L2	10	207	SSNVTSSTPI	23064
HPV33	L2	10	418	SSPFVPISPF	23065
HPV33	L2	11	418	SSPFVPISPFF	23066
HPV33	L2	10	184	SSPTVSTQSY	23067

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	11	212	SSTPIGSRPV	23068
HPV33	L2	8	145	SSVGESSI	23069
HPV33	L2	11	145	SSVGESSIQTI	23070
HPV33	L2	9	354	SSYSINDGL	23071
HPV33	L2	10	354	SSYSINDGLY	23072
HPV33	L2	11	382	STFATRTSNV	23073
HPV33	L2	8	156	STHLNPTF	23074
HPV33	L2	8	38	STIADQIL	23075
HPV33	L2	10	38	STIADQILKY	23076
HPV33	L2	10	213	STPIGSRPV	23077
HPV33	L2	11	213	STPIGSRPVA	23078
HPV33	L2	8	189	STQSYENI	23079
HPV33	L2	10	189	STQSYENIPM	23080
HPV33	L2	9	6	STRKRASA	23081
HPV33	L2	11	352	STSSYSINDGL	23082
HPV33	L2	80	80	TAAIPLQPI	23083
HPV33	L2	8	133	TSADITPA	23084
HPV33	L2	9	133	TSADITPAI	23085
HPV33	L2	10	133	TSADITPAII	23086
HPV33	L2	8	111	TSFIEAGA	23087
HPV33	L2	10	111	TSFIEAGAPA	23088
HPV33	L2	8	389	TSNVSIPL	23089
HPV33	L2	9	244	TSPHKLITY	23090
HPV33	L2	9	293	TSRRHTVRF	23091
HPV33	L2	8	417	TSSPFVPI	23092
HPV33	L2	11	417	TSSPFVPISPF	23093
HPV33	L2	10	353	TSSYSINDGL	23094
HPV33	L2	11	353	TSSYSINDGLY	23095
HPV33	L2	8	351	TSTSSYSI	23096
HPV33	L2	8	137	TTPAIINV	23097
HPV33	L2	11	137	TTPAIINVSSV	23098
HPV33	L2	9	386	TTRTSNVSI	23099
HPV33	L2	11	386	TTRTSNVSIPL	23100
HPV33	L2	9	132	TTSADITPA	23101
HPV33	L2	10	132	TTSADITPAI	23102
HPV33	L2	11	132	TTSADITPAII	23103
HPV33	L2	9	392	VSIPLNTGF	23104
HPV33	L2	9	105	VSLIEETSF	23105
HPV33	L2	10	105	VSLIEETSI	23106
HPV33	L2	9	144	VSSVGESSI	23107
HPV33	L2	8	203	VSTDSSNV	23108
HPV33	L2	9	188	VSTQSYENI	23109
HPV33	L2	11	188	VSTQSYENIPM	23110
HPV33	L2	10	131	VTTSDITPA	23111
HPV33	L2	11	131	VTTSDITPAI	23112
HPV33	L2	9	92	VTVDIVGPL	23113

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	8	366	YADDVDNV	23114
HPV33	L2	8	356	YSINDGLY	23115
HPV33	L2	10	356	YSINDGLYDV	23116
HPV33	L2	11	356	YSINDGLYDVY	23117
HPV33	L2	8	228	YSRNTQQV	23118
HPV33	L2	10	228	YSRNTQQVKV	23119
HPV33	L2	11	228	YSRNTQQVKVV	23120
HPV45	E1	11	382	AAAFKSNCA	23121
HPV45	E1	8	144	AAETQVTV	23122
HPV45	E1	10	383	AAFLKSNCA	23123
HPV45	E1	10	310	AALYWYRTGI	23124
HPV45	E1	10	198	AAMLA VFKDI	23125
HPV45	E1	11	198	AAMLA VFKDIY	23126
HPV45	E1	8	193	ASNKKAAM	23127
HPV45	E1	9	193	ASNKKAAML	23128
HPV45	E1	10	193	ASNKKAAMLA	23129
HPV45	E1	11	193	ASNKKAAMLAV	23130
HPV45	E1	8	40	ATDTGSDM	23131
HPV45	E1	9	40	'ATDTGSDMV	23132
HPV45	E1	11	40	ATDTGSDMVDF	23133
HPV45	E1	8	517	ATHTCWTY	23134
HPV45	E1	9	517	ATHTCWTYF	23135
HPV45	E1	10	251	ATLYAHIIQL	23136
HPV45	E1	8	398	CAVMCRHY	23137
HPV45	E1	11	398	CAVMCRHYKRA	23138
HPV45	E1	11	139	CSEVEAAETQV	23139
HPV45	E1	9	182	CSITELKEL	23140
HPV45	E1	10	182	CSITELKELL	23141
HPV45	E1	10	423	CSKIDEGGDW	23142
HPV45	E1	8	226	CTDWVMAI	23143
HPV45	E1	9	226	CTDWVMAIF	23144
HPV45	E1	11	226	CTDWVMAIFGV	23145
HPV45	E1	9	621	DADTEGIPF	23146
HPV45	E1	8	78	DAQVLHLL	23147
HPV45	E1	9	516	DATHTCWTY	23148
HPV45	E1	10	516	DATHTCWTYF	23149
HPV45	E1	9	134	DSGYGCSEV	23150
HPV45	E1	11	134	DSGYGCSEVEA	23151
HPV45	E1	9	345	DSNFDLSDM	23152
HPV45	E1	10	345	DSNFDLSDMV	23153
HPV45	E1	9	170	DSSDNAENV	23154
HPV45	E1	8	106	DTDLSPLRL	23155
HPV45	E1	11	106	DTDLSPLRQEI	23156
HPV45	E1	10	623	DTGPIPGTF	23157
HPV45	E1	9	42	DTGSDMVDF	23158
HPV45	E1	10	42	DTGSDMVDFI	23159

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	10	508	DTKVAMLD DA	23160
HPV45	E1	9	328	DTPEW IQL	23161
HPV45	E1	11	328	DTPEW IQLTI	23162
HPV45	E1	10	52	DTQLSICEQA	23163
HPV45	E1	9	143	EAETQVTV	23164
HPV45	E1	8	365	ESDMAFY	23165
HPV45	E1	9	365	ESDMAFYA	23166
HPV45	E1	11	365	ESDMAFYAQL	23167
HPV45	E1	9	573	ESRVTVTF	23168
HPV45	E1	9	64	ETAQALFHA	23169
HPV45	E1	10	38	ETATDTGSDM	23170
HPV45	E1	11	38	ETATDTGSDMV	23171
HPV45	E1	11	295	ETCMLIEPKL	23172
HPV45	E1	11	21	ETIVEKKTGDV	23173
HPV45	E1	10	146	ETQVTVNTNA	23174
HPV45	E1	11	89	FAGGSKENSPL	23175
HPV45	E1	8	212	FTDLVRNF	23176
HPV45	E1	9	579	FTFPIAFPF	23177
HPV45	E1	8	130	FTSDSGY	23178
HPV45	E1	8	44	GSDMVDFI	23179
HPV45	E1	8	92	GSKENSPL	23180
HPV45	E1	8	11	GTGCNGWF	23181
HPV45	E1	9	11	GTGCNGWFF	23182
HPV45	E1	10	11	GTGCNGWFFV	23183
HPV45	E1	8	459	GTPKKNCI	23184
HPV45	E1	9	459	GTPKKNCIL	23185
HPV45	E1	10	459	GTPKKNCILLY	23186
HPV45	E1	11	459	GTPKKNCILLY	23187
HPV45	E1	9	71	HAQEVQND A	23188
HPV45	E1	11	71	HAQEVQND A	23189
HPV45	E1	10	519	HTCWTFYDNY	23190
HPV45	E1	11	519	HTCWTFYDNYM	23191
HPV45	E1	9	32	ISDDEDETA	23192
HPV45	E1	11	132	ISDSGYGCSEV	23193
HPV45	E1	11	322	ISEVSGDTPEW	23194
HPV45	E1	10	447	ISFLRALKEF	23195
HPV45	E1	11	447	ISFLRALKEFL	23196
HPV45	E1	10	492	ISFVNSNSHF	23197
HPV45	E1	11	492	ISFVNSNSHF	23198
HPV45	E1	10	538	ISIDRKIIKPL	23199
HPV45	E1	11	538	ISIDRKIIKPLL	23200
HPV45	E1	10	116	ISLNSGHKKA	23201
HPV45	E1	8	184	ITELKELL	23202
HPV45	E1	10	184	ITELKELLOA	23203
HPV45	E1	8	197	KAAMLAVF	23204
HPV45	E1	11	197	KAAMLAVFKDI	23205

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	11	119	NSGHKKAKRRRL	23252
HPV45	E1	9	498	NSHFWLEPL	23253
HPV45	E1	10	498	NSHFWLEPLA	23254
HPV45	E1	8	379	NSNAAFL	23255
HPV45	E1	8	496	NSNSHFWL	23256
HPV45	E1	11	496	NSNSHFWLEPL	23257
HPV45	E1	8	96	NSPLGEQL	23258
HPV45	E1	10	96	NSPLGEQLSV	23259
HPV45	E1	9	473	NTGKSYFGM	23260
HPV45	E1	11	473	NTGKSYFGMSF	23261
HPV45	E1	10	152	NTNAENGGSV	23262
HPV45	E1	9	563	PAKDNKWPY	23263
HPV45	E1	10	563	PAKDNKWPYL	23264
HPV45	E1	8	471	PANTGKSY	23265
HPV45	E1	9	471	PANTGKSYF	23266
HPV45	E1	11	471	PANTGKSYFGM	23267
HPV45	E1	8	250	PATLYAHI	23268
HPV45	E1	11	250	PATLYAHIQCL	23269
HPV45	E1	10	238	PTVAEGFKTL	23270
HPV45	E1	11	238	PTVAEGFKTLI	23271
HPV45	E1	9	60	QAEQETAQA	23272
HPV45	E1	10	60	QAEQETAQAL	23273
HPV45	E1	11	60	QAEQETAQALF	23274
HPV45	E1	9	391	QAKYLDKCA	23275
HPV45	E1	10	391	QAKYLDKCAV	23276
HPV45	E1	11	391	QAKYLDKCAVM	23277
HPV45	E1	9	67	QALFHAQEV	23278
HPV45	E1	8	192	QASNKKA	23279
HPV45	E1	9	192	QASNKKAAM	23280
HPV45	E1	10	192	QASNKKAAML	23281
HPV45	E1	11	192	QASNKKAAMLA	23282
HPV45	E1	11	165	QSSGGDSSDNA	23283
HPV45	E1	9	407	RAQKRQNMN	23284
HPV45	E1	8	306	RSSVAALY	23285
HPV45	E1	9	306	RSSVAALYW	23286
HPV45	E1	10	306	RSSVAALYWY	23287
HPV45	E1	10	316	RTGISNISEV	23288
HPV45	E1	8	608	RTWSRLDL	23289
HPV45	E1	8	171	SSDNAENV	23290
HPV45	E1	10	166	SSGGDSSDNA	23291
HPV45	E1	8	307	SSVAALYW	23292
HPV45	E1	9	307	SSVAALYWY	23293
HPV45	E1	11	288	STLLHVPETCM	23294
HPV45	E1	8	65	TAQALFHA	23295
HPV45	E1	11	65	TAQALFHAQEV	23296
HPV45	E1	9	39	TATDTGSDM	23297

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	10	39	TATDTGSDMV	23298
HPV45	E1	8	224	TTCTDWVM	23299
HPV45	E1	9	224	TTCTDWVMA	23300
HPV45	E1	10	224	TTCTDWVMAI	23301
HPV45	E1	11	224	TTCTDWVMAIF	23302
HPV45	E1	11	309	VAALYWYRTGI	23303
HPV45	E1	8	240	VAEGFKTL	23304
HPV45	E1	9	240	VAEGFKTLI	23305
HPV45	E1	8	283	VAKGLSTL	23306
HPV45	E1	9	283	VAKGLSTLL	23307
HPV45	E1	11	283	VAKGLSTLLHV	23308
HPV45	E1	8	325	VSGDTPFW	23309
HPV45	E1	9	325	VSGDTPEWI	23310
HPV45	E1	9	635	VTGQNTPL	23311
HPV45	E1	9	576	VTVTFPHA	23312
HPV45	E1	10	576	VTVTFPHAF	23313
HPV45	E1	8	522	WTFYFDNYM	23314
HPV45	E1	11	522	WTFYFDNYMRNA	23315
HPV45	E1	11	254	YAHIQCLDCKW	23316
HPV45	E1	11	372	YAQLADCNSNA	23317
HPV45	E2	9	156	AACVSYWGV	23318
HPV45	E2	10	156	AACVSYWGVY	23319
HPV45	E2	11	156	AACVSYWGVYY	23320
HPV45	E2	9	226	ASTSTPKTA	23321
HPV45	E2	11	226	ASTSTPKTASV	23322
HPV45	E2	10	234	ASVGTPKPHI	23323
HPV45	E2	10	247	ATKRPRQCGL	23324
HPV45	E2	8	216	ATQIVRQL	23325
HPV45	E2	11	216	ATQIVRQLQHA	23326
HPV45	E2	8	286	CSGNTTPI	23327
HPV45	E2	9	286	CSGNTTPIH	23328
HPV45	E2	11	286	CSGNTTPIHL	23329
HPV45	E2	8	207	CSTSDDTV	23330
HPV45	E2	10	207	CSTSDDTVSA	23331
HPV45	E2	11	141	DSIYYTETGI	23332
HPV45	E2	9	28	DSKDINSQI	23333
HPV45	E2	11	28	DSKDINSQISY	23334
HPV45	E2	11	204	DSMCSTSDDTV	23335
HPV45	E2	8	171	DTIYYVQF	23336
HPV45	E2	8	212	DTVSATQI	23337
HPV45	E2	9	212	DTVSATQIV	23338
HPV45	E2	9	8	ESLSERLSA	23339
HPV45	E2	10	8	ESLSERLSAL	23340
HPV45	E2	9	148	ETGIWDKTA	23341
HPV45	E2	10	148	ETGIWDKTA	23342
HPV45	E2	8	50	FTAREHGI	23343

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E2	11	50	FTAREHGITKL	23344
HPV45	E2	11	237	GTPKPHIQTPA	23345
HPV45	E2	10	225	HASTSTPKTA	23346
HPV45	E2	9	70	ISKSAHKA	23347
HPV45	E2	10	70	ISKSAHKAI	23348
HPV45	E2	8	361	ISVGYMTI	23349
HPV45	E2	9	36	ISYWQLIRL	23350
HPV45	E2	11	146	ITETGIWDKTA	23351
HPV45	E2	8	57	ITKLNHQV	23352
HPV45	E2	9	57	ITKLNHQVV	23353
HPV45	E2	8	74	KAHKAIEL	23354
HPV45	E2	10	74	KAHKAIELQM	23355
HPV45	E2	11	74	KAHKAIELQMA	23356
HPV45	E2	8	77	KAIELQMA	23357
HPV45	E2	9	77	KAIELQMAL	23358
HPV45	E2	8	72	KSKAHKAI	23359
HPV45	E2	10	72	KSKAHKAIEL	23360
HPV45	E2	8	154	KTAACVSY	23361
HPV45	E2	9	154	KTAACVSYW	23362
HPV45	E2	11	154	KTAACVSYWGV	23363
HPV45	E2	11	88	LAQSKYNNEEW	23364
HPV45	E2	8	14	LSALQDKI	23365
HPV45	E2	9	14	LSALQDKIL	23366
HPV45	E2	8	10	LSERLSAL	23367
HPV45	E2	9	256	LTEQHIIGRV	23368
HPV45	E2	9	336	LTVTYNSEV	23369
HPV45	E2	11	83	MALKGLAQSKY	23370
HPV45	E2	9	341	NSEVQRNTF	23371
HPV45	E2	10	341	NSEVQRNTFL	23372
HPV45	E2	8	301	NSLKCLRY	23373
HPV45	E2	10	301	NSLKCLRYRL	23374
HPV45	E2	9	187	NSNTWEVQY	23375
HPV45	E2	9	33	NSQISYWQL	23376
HPV45	E2	10	33	NSQISYWQLI	23377
HPV45	E2	9	357	NSVQISVGY	23378
HPV45	E2	10	357	NSVQISVGYM	23379
HPV45	E2	8	109	NTEPSQCF	23380
HPV45	E2	9	347	NTFLDVVTI	23381
HPV45	E2	9	332	NTGILTVTY	23382
HPV45	E2	8	265	NTHVHNPL	23383
HPV45	E2	9	265	NTHVHNPLL	23384
HPV45	E2	8	289	NTTPIIHL	23385
HPV45	E2	11	189	NTWEVQYGGNV	23386
HPV45	E2	11	246	PATKRPRQCGL	23387
HPV45	E2	9	90	QSKYNNEEW	23388
HPV45	E2	11	90	QSKYNNEEWTL	23389

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E2	11	4	QTPKESLSERL	23390
HPV45	E2	8	15	SALQDKIL	23391
HPV45	E2	11	15	SALQDKILDIH	23392
HPV45	E2	9	215	SATQIVRQL	23393
HPV45	E2	11	275	SSTSNKRRKV	23394
HPV45	E2	8	229	STPKTASV	23395
HPV45	E2	9	208	STSDDTVSA	23396
HPV45	E2	10	276	STSNKRRKV	23397
HPV45	E2	8	227	STSTPKTA	23398
HPV45	E2	10	227	STSTPKTASV	23399
HPV45	E2	8	155	TAACVSYW	23400
HPV45	E2	10	155	TAACVSYWGV	23401
HPV45	E2	11	155	TAACVSYWGVY	23402
HPV45	E2	10	51	TAREHGITKL	23403
HPV45	E2	11	233	TASVGTGPKPHI	23404
HPV45	E2	8	209	TSDDTVSA	23405
HPV45	E2	11	209	TSDDTVSATQI	23406
HPV45	E2	9	277	TSNNKRRKV	23407
HPV45	E2	9	228	TSTPKTASV	23408
HPV45	E2	10	214	VSATQIVRQL	23409
HPV45	E2	8	159	VSYWGVVY	23410
HPV45	E2	9	159	VSYWGVVYI	23411
HPV45	E2	9	353	VTIPNSVQI	23412
HPV45	E2	11	353	VTIPNSVQISV	23413
HPV45	E2	10	326	WTGCNKNTGI	23414
HPV45	E2	11	326	WTGCNKNTGIL	23415
HPV45	E2	10	98	WTLQDTCEEL	23416
HPV45	E2	11	98	WTLQDTCEELW	23417
HPV45	E2	8	313	YADHYSEI	23418
HPV45	E2	8	317	YSEISSTW	23419
HPV45	E2	10	317	YSEISSTWHW	23420
HPV45	E6	9	63	AACHKCIDF	23421
HPV45	E6	10	63	AACHKCIDFY	23422
HPV45	E6	8	37	ATLRTFV	23423
HPV45	E6	9	37	ATLRTFVY	23424
HPV45	E6	11	37	ATLRTFVYQF	23425
HPV45	E6	8	18	CTELNTSL	23426
HPV45	E6	11	18	CTELNTSLQDV	23427
HPV45	E6	11	88	ETLEKITNTL	23428
HPV45	E6	8	47	FAFKDLFI	23429
HPV45	E6	9	47	FAFKDLFV	23430
HPV45	E6	10	47	FAFKDLFIVY	23431
HPV45	E6	8	30	IACVYCKA	23432
HPV45	E6	10	30	IACVYCKATL	23433
HPV45	E6	10	60	IAYAACHKCI	23434
HPV45	E6	9	93	ITNTLYNL	23435

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E6	10	93	ITNTELYNLL	23436
HPV45	E6	11	93	ITNTELYNLLI	23437
HPV45	E6	9	36	KATLERTEV	23438
HPV45	E6	10	36	KATLERTEVY	23439
HPV45	E6	8	83	NSVYGETL	23440
HPV45	E6	11	83	NSVYGETLEKI	23441
HPV45	E6	8	95	NTELYNLL	23442
HPV45	E6	9	95	NTELYNLLI	23443
HPV45	E6	9	22	NTSLQDVSI	23444
HPV45	E6	10	22	NTSLQDVSI	23445
HPV45	E6	8	114	PAEKRRHL	23446
HPV45	E6	8	7	PTQRPYKL	23447
HPV45	E6	11	7	PTQRPYKLPDL	23448
HPV45	E6	8	41	RTEVYQFA	23449
HPV45	E6	9	41	RTEVYQFAF	23450
HPV45	E6	8	23	TSLQDVSI	23451
HPV45	E6	9	23	TSLQDVSI	23452
HPV45	E6	11	23	TSLQDVSIACV	23453
HPV45	E6	10	28	VSIACVYCKA	23454
HPV45	E6	8	62	YAACHKCI	23455
HPV45	E6	10	62	YAACHKCIDF	23456
HPV45	E6	11	62	YAACHKCIDFY	23457
HPV45	E6	10	81	YNSVYGETL	23458
HPV45	E6	9	72	YSRIRELRY	23459
HPV45	E6	10	72	YSRIRELRY	23460
HPV45	E7	8	6	ATLQEIVL	23461
HPV45	E7	10	6	ATLQEIVLHL	23462
HPV45	E7	8	41	EADGVSHA	23463
HPV45	E7	10	41	EADGVSHAQL	23464
HPV45	E7	9	34	ESEEENDEA	23465
HPV45	E7	10	78	ESSADDLRTL	23466
HPV45	E7	9	47	HAQLPARRA	23467
HPV45	E7	11	32	LSEEEENDEA	23468
HPV45	E7	9	95	LSFVCPWCA	23469
HPV45	E7	10	92	LSTLSFVCPW	23470
HPV45	E7	10	75	LTVESSADDL	23471
HPV45	E7	9	54	RAEPQRHKI	23472
HPV45	E7	10	54	RAEPQRHKIL	23473
HPV45	E7	8	5	RATLQEIV	23474
HPV45	E7	9	5	RATLQEIVL	23475
HPV45	E7	11	5	RATLQEIVLHL	23476
HPV45	E7	8	85	RTLQQLFL	23477
HPV45	E7	11	85	RTLQQLFLSTL	23478
HPV45	E7	8	80	SADDLRTL	23479
HPV45	E7	11	80	SADDLRTLQQL	23480
HPV45	E7	9	79	SSADDLRTL	23481

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E7	9	93	STLSFVCPW	23482
HPV45	E7	11	93	STLSFVCPWCA	23483
HPV45	E7	8	45	VSHAQLPA	23484
HPV45	E7	11	45	VSHAQLPARA	23485
HPV45	L1	11	517	AASTSTASRPA	23486
HPV45	L1	10	161	AATAVITQDV	23487
HPV45	L1	8	523	ASRPAAKV	23488
HPV45	L1	10	523	ASRPAAKRVRI	23489
HPV45	L1	11	375	ASTQNPVPNTY	23490
HPV45	L1	10	518	ASTSTASRPA	23491
HPV45	L1	9	162	ATAVITQDV	23492
HPV45	L1	8	374	CASTQNPV	23493
HPV45	L1	9	409	CTITLTAEV	23494
HPV45	L1	10	409	CTITLTAEVM	23495
HPV45	L1	9	332	DSQLFNKPY	23496
HPV45	L1	10	332	DSQLFNKPYW	23497
HPV45	L1	11	332	DSQLFNKPYWL	23498
HPV45	L1	34	34	DSTVYLPSPV	23499
HPV45	L1	8	155	DTESAHAA	23500
HPV45	L1	10	155	DTESAHAAATA	23501
HPV45	L1	11	155	DTESAHAAATAV	23502
HPV45	L1	9	229	DTGYGAMDF	23503
HPV45	L1	8	242	DTKCEVPL	23504
HPV45	L1	10	242	DTKCEVPLDI	23505
HPV45	L1	11	461	DTTPPEKQDPY	23506
HPV45	L1	8	364	DTTRSTNL	23507
HPV45	L1	10	364	DTTRSTNLTL	23508
HPV45	L1	8	296	DTVPTDLY	23509
HPV45	L1	9	296	DTVPTDLYI	23510
HPV45	L1	9	446	DTYRFVQSV	23511
HPV45	L1	10	446	DTYRFVQSVVA	23512
HPV45	L1	11	446	DTYRFVQSVAV	23513
HPV45	L1	8	157	ESAHAAATA	23514
HPV45	L1	9	157	ESAHAAATAV	23515
HPV45	L1	10	157	ESAHAAATAVI	23516
HPV45	L1	8	313	ETPGSCVY	23517
HPV45	L1	8	121	ETQRLVWA	23518
HPV45	L1	10	121	ETQRLVWACV	23519
HPV45	L1	9	283	FARHFWNRA	23520
HPV45	L1	11	283	FARHFWNRAGV	23521
HPV45	L1	8	485	FSSDLQY	23522
HPV45	L1	10	485	FSSDLQYPL	23523
HPV45	L1	11	237	FSTLQDTKCEV	23524
HPV45	L1	8	82	GAGNKQAV	23525
HPV45	L1	11	82	GAGNKQAVPKV	23526
HPV45	L1	8	233	GAMDFSTL	23527

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	10	326	GSITSDSQL	23528
HPV45	L1	11	326	GSITSDSQLF	23529
HPV45	L1	8	64	GSSRLTV	23530
HPV45	L1	9	199	GTLCKPAQL	23531
HPV45	L1	11	160	HAATAVITQDV	23532
HPV45	L1	8	62	HAGSSRL	23533
HPV45	L1	10	62	HAGSSRLTV	23534
HPV45	L1	8	422	HSMNSSIL	23535
HPV45	L1	11	422	HSMNSSILENW	23536
HPV45	L1	8	411	ITLTAEM	23537
HPV45	L1	10	411	ITLTAEVMSY	23538
HPV45	L1	11	411	ITLTAEVMSYI	23539
HPV45	L1	9	166	ITQDVRDNI	23540
HPV45	L1	11	166	ITQDVRDNI	23541
HPV45	L1	8	328	ITSDSQL	23542
HPV45	L1	9	328	ITSDSQLF	23543
HPV45	L1	9	344	KAQGHNNGI	23544
HPV45	L1	11	344	KAQGHNNGICW	23545
HPV45	L1	10	144	LSGHPFYNKL	23546
HPV45	L1	8	413	LTAEVMSY	23547
HPV45	L1	9	413	LTAEVMSYI	23548
HPV45	L1	11	371	LTLCASTQNPV	23549
HPV45	L1	8	69	LTVGNPYF	23550
HPV45	L1	10	69	LTVGNPYFRV	23551
HPV45	L1	11	69	LTVGNPYFRV	23552
HPV45	L1	1	1	MAHNIYGHGI	23553
HPV45	L1	11	27	MALWRPSDSTV	23554
HPV45	L1	10	264	MSADPYGDSM	23555
HPV45	L1	11	264	MSADPYGDSMF	23556
HPV45	L1	11	418	MSYIHSMNSSI	23557
HPV45	L1	8	425	NSSILENW	23558
HPV45	L1	10	425	NSSILENWNF	23559
HPV45	L1	11	49	NTDDYVSRTSI	23560
HPV45	L1	9	219	NTIHDGDM	23561
HPV45	L1	10	219	NTIHDGDMV	23562
HPV45	L1	8	383	NTYDPTKF	23563
HPV45	L1	11	383	NTYDPTKFKHY	23564
HPV45	L1	8	516	PAASTSTA	23565
HPV45	L1	8	190	PAEGHWA	23566
HPV45	L1	8	32	PSDSTVYL	23567
HPV45	L1	9	80	PSGAGNKQA	23568
HPV45	L1	10	80	PSGAGNKQAV	23569
HPV45	L1	11	299	PTDLYIKGTSA	23570
HPV45	L1	10	508	PTIGPRKRPA	23571
HPV45	L1	11	508	PTIGPRKRPA	23572
HPV45	L1	11	387	PTKFKIYSRHV	23573

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	9	440	PTTSLVDY	23574
HPV45	L1	11	440	PTTSLVDYRF	23575
HPV45	L1	10	501	QAGLRRRPTI	23576
HPV45	L1	8	87	QAVPKVSA	23577
HPV45	L1	9	87	QAVPKVSAY	23578
HPV45	L1	11	87	QAVPKVSAYQY	23579
HPV45	L1	9	253	QSICKYPDY	23580
HPV45	L1	10	253	QSICKYPDYL	23581
HPV45	L1	180	180	QTQLCILGCV	23582
HPV45	L1	9	290	RAGVMGDTV	23583
HPV45	L1	9	367	RSTNLTLC	23584
HPV45	L1	8	56	RTSIFYIIA	23585
HPV45	L1	9	265	SADPYGDSM	23586
HPV45	L1	10	265	SADPYGDSMF	23587
HPV45	L1	11	265	SADPYGDSMFF	23588
HPV45	L1	8	158	SAHAATAV	23589
HPV45	L1	9	158	SAHIAATAVI	23590
HPV45	L1	8	93	SAYQYRVF	23591
HPV45	L1	10	93	SAYQYRVFRV	23592
HPV45	L1	11	93	SAYQYRVFRVA	23593
HPV45	L1	9	486	SSDLDDQYPL	23594
HPV45	L1	9	426	SSILENWNF	23595
HPV45	L1	11	426	SSILENWNFGV	23596
HPV45	L1	11	65	SSRLTVGNPY	23597
HPV45	L1	10	521	STASRPACRV	23598
HPV45	L1	11	115	STYNPETQRL	23599
HPV45	L1	10	238	STLQDTKCEV	23600
HPV45	L1	8	368	STNLTLC	23601
HPV45	L1	10	376	STQNPVPNTY	23602
HPV45	L1	9	519	STSTASRPA	23603
HPV45	L1	10	35	STVYLPSPSV	23604
HPV45	L1	11	35	STVYLPSPSVA	23605
HPV45	L1	8	414	TAEVMSYI	23606
HPV45	L1	11	414	TAEVMSYIHSM	23607
HPV45	L1	9	522	TASRPACRV	23608
HPV45	L1	11	522	TASRPACRVRI	23609
HPV45	L1	8	163	TAVITQDV	23610
HPV45	L1	11	330	TSDSQLFNKPY	23611
HPV45	L1	9	442	TSLVDYRF	23612
HPV45	L1	10	442	TSLVDYTFV	23613
HPV45	L1	8	520	TSTASRPA	23614
HPV45	L1	11	520	TSTASRPACRV	23615
HPV45	L1	10	462	TTPPEKQDPY	23616
HPV45	L1	9	365	TTRSTNLT	23617
HPV45	L1	11	365	TTRSTNLTLC	23618
HPV45	L1	8	329	TTSDSQLF	23619

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	8	441	TTSLVDY	23620
HPV45	L1	10	441	TTSLVDYRF	23621
HPV45	L1	11	441	TTSLVDYRFV	23622
HPV45	L1	9	102	VALPDPNKF	23623
HPV45	L1	11	102	VALPDPNKFGL	23624
HPV45	L1	10	44	VARVVNTDDY	23625
HPV45	L1	11	44	VARVVNTDDYV	23626
HPV45	L1	8	92	VSAYQYRV	23627
HPV45	L1	9	92	VSAYQYRVF	23628
HPV45	L1	11	92	VSAYQYRVFRV	23629
HPV45	L1	8	54	VSRTSIFY	23630
HPV45	L1	10	54	VSRTSIFYHA	23631
HPV45	L1	10	174	VSVDYKQTQL	23632
HPV45	L1	8	127	WACVGMEL	23633
HPV45	L1	10	196	WAKGTLCKPA	23634
HPV45	L1	9	477	WTVDLKEKF	23635
HPV45	L1	9	320	YSPSPGSI	23636
HPV45	L1	8	393	YSRHVEEY	23637
HPV45	L1	10	393	YSRHVEEYDL	23638
HPV45	L2	9	6	AARRKRASA	23639
HPV45	L2	8	381	AASSYSNV	23640
HPV45	L2	10	381	AASSYSNVTV	23641
HPV45	L2	8	327	AATEIEL	23642
HPV45	L2	11	327	AATEIELQPL	23643
HPV45	L2	9	114	ASGAPVPTF	23644
HPV45	L2	10	201	ASSGSGTEPI	23645
HPV45	L2	9	382	ASSYSNVTV	23646
HPV45	L2	11	382	ASSYSNVTVPL	23647
HPV45	L2	8	357	ASTTPSTI	23648
HPV45	L2	9	423	ASTTYIGI	23649
HPV45	L2	10	328	ATEEIELQPL	23650
HPV45	L2	11	328	ATEEIELQPLI	23651
HPV45	L2	11	303	ATMFTRSGKQI	23652
HPV45	L2	8	340	ATNDSDLF	23653
HPV45	L2	10	340	ATNDSDLFV	23654
HPV45	L2	11	340	ATNDSDLFVY	23655
HPV45	L2	8	273	DSDFMDII	23656
HPV45	L2	10	273	DSDFMDIIRL	23657
HPV45	L2	8	343	DSDLFDVY	23658
HPV45	L2	9	343	DSDLFDVYA	23659
HPV45	L2	11	343	DSDLFDVYADF	23660
HPV45	L2	9	109	DSSVVASGA	23661
HPV45	L2	11	109	DSSVVASGAPV	23662
HPV45	L2	10	148	DSSVSSSTSF	23663
HPV45	L2	8	456	FADGFVAA	23664
HPV45	L2	11	200	FASSGSGTEPI	23665

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	9	162	FSFPSIIEV	23666
HPV45	L2	8	296	FSRLGQRA	23667
HPV45	L2	10	296	FSRLGQRATM	23668
HPV45	L2	11	296	FSRLGQRATMF	23669
HPV45	L2	9	122	FTGTSGFEI	23670
HPV45	L2	11	157	FTNPAFSDPSI	23671
HPV45	L2	8	306	FTRSGKQI	23672
HPV45	L2	8	368	FTYPKYSL	23673
HPV45	L2	10	368	FTYPKYSLTM	23674
HPV45	L2	8	64	GSGGRTGY	23675
HPV45	L2	9	64	GSGGRTGYV	23676
HPV45	L2	11	64	GSGGRTGYVPL	23677
HPV45	L2	10	62	GSGGGRTGY	23678
HPV45	L2	11	62	GSGGGRTGYV	23679
HPV45	L2	8	188	GSHGYEEI	23680
HPV45	L2	10	188	GSHGYEEIPL	23681
HPV45	L2	8	25	GTCPPDVI	23682
HPV45	L2	11	25	GTCPPDVINKV	23683
HPV45	L2	10	206	GTEPISSTPL	23684
HPV45	L2	10	183	GTPTSGSHGY	23685
HPV45	L2	9	433	GTQYYLWPW	23686
HPV45	L2	10	433	GTQYYLWPWY	23687
HPV45	L2	11	433	GTQYYLWPWYY	23688
HPV45	L2	8	37	GTTLADKI	23689
HPV45	L2	9	37	GTTLADKIL	23690
HPV45	L2	11	37	GTTLADKILQW	23691
HPV45	L2	8	134	GTTTPAVL	23692
HPV45	L2	10	134	GTTTPAVLDI	23693
HPV45	L2	8	292	GTVRFSRL	23694
HPV45	L2	9	326	IAATEEIEL	23695
HPV45	L2	9	338	ISATNDSDL	23696
HPV45	L2	10	338	ISATNDSDLF	23697
HPV45	L2	10	323	ISPIAATEEI	23698
HPV45	L2	9	210	ISSTPLPTV	23699
HPV45	L2	10	152	ISSTSFTNPA	23700
HPV45	L2	11	152	ISSTSFTNPAF	23701
HPV45	L2	8	143	ITPTVDSV	23702
HPV45	L2	10	143	ITPTVDSVSI	23703
HPV45	L2	10	130	ITSSGTTTPA	23704
HPV45	L2	11	130	ITSSGTTTPAV	23705
HPV45	L2	8	366	KSFTYPKY	23706
HPV45	L2	10	366	KSFTYPKYSL	23707
HPV45	L2	8	40	LADKILQW	23708
HPV45	L2	11	40	LADKILQWSSL	23709
HPV45	L2	9	263	LSFEPTSNV	23710
HPV45	L2	8	287	LSSRRGTV	23711

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	10	287	LSSRRGTVRF	23712
HPV45	L2	8	242	LTHPSSLV	23713
HPV45	L2	10	242	LTHPSSLVTF	23714
HPV45	L2	8	375	LTMPTAA	23715
HPV45	L2	11	375	LTMPSTAASSY	23716
HPV45	L2	9	392	LTSAWDVPI	23717
HPV45	L2	10	392	LTSAWDVPIY	23718
HPV45	L2	8	422	NASTTTYI	23719
HPV45	L2	10	422	NASTTTYIGI	23720
HPV45	L2	8	160	PAFSDPSI	23721
HPV45	L2	9	160	PAFSDPSII	23722
HPV45	L2	11	160	PAFSDPSIIEV	23723
HPV45	L2	10	285	PALSSRRGTV	23724
HPV45	L2	9	356	PASTTPSTI	23725
HPV45	L2	10	138	PAVLDTPTV	23726
HPV45	L2	10	254	PAYEPLDTTL	23727
HPV45	L2	11	245	PSSLVTFDNPA	23728
HPV45	L2	8	378	PSTAASSY	23729
HPV45	L2	11	378	PSTAASSYSNV	23730
HPV45	L2	8	361	PSTIIKSF	23731
HPV45	L2	10	361	PSTIIKSFY	23732
HPV45	L2	8	416	PSTSPTNA	23733
HPV45	L2	9	98	PTDPSIVTL	23734
HPV45	L2	10	98	PTDPSIVTLV	23735
HPV45	L2	9	120	PTFTGTSGF	23736
HPV45	L2	11	120	PTFTGTSGFEI	23737
HPV45	L2	9	420	PTNASTTTY	23738
HPV45	L2	10	420	PTNASTTTYI	23739
HPV45	L2	8	86	PTRPPVVI	23740
HPV45	L2	11	86	PTRPPVVIIEPV	23741
HPV45	L2	8	185	PTSGSHGY	23742
HPV45	L2	11	185	PTSGSHGYEEI	23743
HPV45	L2	10	267	PTSNVPDSDF	23744
HPV45	L2	11	267	PTSNVPDSDFM	23745
HPV45	L2	8	145	PTVDSVSI	23746
HPV45	L2	11	216	PTVRRVRGPRL	23747
HPV45	L2	9	23	QSGTCPPDV	23748
HPV45	L2	10	23	QSGTCPPDVI	23749
HPV45	L2	9	172	QTGEVSGNI	23750
HPV45	L2	10	172	QTGEVSGNIF	23751
HPV45	L2	11	172	QTGEVSGNIFV	23752
HPV45	L2	8	5	RAARRKRA	23753
HPV45	L2	10	5	RAARRKRASA	23754
HPV45	L2	8	229	RANQQVRV	23755
HPV45	L2	8	11	RASATDLY	23756
HPV45	L2	10	308	RSGKQIGGRV	23757

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	8	77	RSNTVVVDV	23758
HPV45	L2	8	339	SATNDSDL	23759
HPV45	L2	9	339	SATNDSDLF	23760
HPV45	L2	11	339	SATNDSDLFDV	23761
HPV45	L2	8	394	SAWDVPIY	23762
HPV45	L2	9	202	SSGSGTEPI	23763
HPV45	L2	8	132	SSGTTTPA	23764
HPV45	L2	9	132	SSGTTTPAV	23765
HPV45	L2	10	132	SSGTTTPAVL	23766
HPV45	L2	10	48	SSLGFLGGL	23767
HPV45	L2	10	246	SSLVTFDNPAY	23768
HPV45	L2	11	246	SSLVTFDNPAY	23769
HPV45	L2	9	288	SSRRGTGRF	23770
HPV45	L2	8	211	SSTPLTV	23771
HPV45	L2	11	211	SSTPLTVRRV	23772
HPV45	L2	9	153	SSTSFTNPA	23773
HPV45	L2	10	153	SSTSFTNPAF	23774
HPV45	L2	8	110	SSVVASGA	23775
HPV45	L2	10	110	SSVVASGAPV	23776
HPV45	L2	8	383	SSYSNVTV	23777
HPV45	L2	10	383	SSYSNVTVPL	23778
HPV45	L2	10	379	STAASSYSNV	23779
HPV45	L2	9	362	STHKSTY	23780
HPV45	L2	10	212	STPLTVRRV	23781
HPV45	L2	8	154	STSFTNPA	23782
HPV45	L2	9	154	STSFTNPAF	23783
HPV45	L2	11	358	STTPSTHKSF	23784
HPV45	L2	8	424	STTYIGI	23785
HPV45	L2	9	380	TAASSYSNV	23786
HPV45	L2	11	380	TAASSYSNVTV	23787
HPV45	L2	8	393	TSAWDVPI	23788
HPV45	L2	9	393	TSAWDVPIY	23789
HPV45	L2	8	155	TSFTNPAF	23790
HPV45	L2	10	186	TSGSIGYEEI	23791
HPV45	L2	9	268	TSNVPSDF	23792
HPV45	L2	10	268	TSNVPSDFM	23793
HPV45	L2	11	418	TSPTNASTTY	23794
HPV45	L2	11	238	TSQELTHPSSL	23795
HPV45	L2	9	131	TSSGTTTPA	23796
HPV45	L2	10	131	TSSGTTTPAV	23797
HPV45	L2	11	131	TSSGTTTPAVL	23798
HPV45	L2	8	38	TTLADKIL	23799
HPV45	L2	10	38	TTLADKILQW	23800
HPV45	L2	11	261	TTLSEPTSNV	23801
HPV45	L2	8	136	TTPAVLDI	23802
HPV45	L2	10	359	TTPSTHKSF	23803

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	9	135	TTTPAVLDI	23804
HPV45	L2	11	426	TTYIGHGTQY	23805
HPV45	L2	10	113	VASGAPVPTF	23806
HPV45	L2	11	2	VSHRAARRKRA	23807
HPV45	L2	8	150	VSISSFSF	23808
HPV45	L2	8	249	VTFDNPAY	23809
HPV45	L2	11	249	VTFDNPAYEPL	23810
HPV45	L2	9	104	VTLVEDSSV	23811
HPV45	L2	10	104	VTLVEDSSVV	23812
HPV45	L2	11	104	VTLVEDSSVVA	23813
HPV45	L2	8	388	VTVPLTSA	23814
HPV45	L2	8	388	VTVPLTSAW	23815
HPV45	L2	9	388	VTVPLTSAWDV	23816
HPV45	L2	11	388	WSSLGIFL	23817
HPV45	L2	8	47	WSSLGIFLGG	23818
HPV45	L2	11	47	YADFPPA	23819
HPV45	L2	8	350	YSLTMPSTA	23820
HPV45	L2	9	373	YSLTMPSTAA	23821
HPV45	L2	10	373	YSNVTVPL	23822
HPV45	L2	8	385	YSNVTVPLTSA	23823
HPV45	L2	11	385	YSRANQQV	23824
HPV45	L2	8	227	YSRANQQVRV	23825
HPV45	L2	10	227	YTGPDIIL	23826
HPV45	L2	8	401	CSAIEVQI	23827
HPV56	E2	8	13	CSAIEVQIA	23828
HPV56	E2	9	13	CSAIEVQIAL	23829
HPV56	E2	10	13	CSGVDYRGI	23830
HPV56	E2	9	92	CSGVDYRGIY	23831
HPV56	E2	10	92	CSGVDYRGIYY	23832
HPV56	E2	11	92	DSSRESHA	23833
HPV56	E2	8	195	DSSRESIAKCV	23834
HPV56	E2	11	195	DSVSSTCRY	23835
HPV56	E2	9	140	DSVSSTCRYNV	23836
HPV56	E2	11	140	DTCEELWL	23837
HPV56	E2	8	39	EAKKFGCKNI	23838
HPV56	E2	10	117	EAKKFGCKNIW	23839
HPV56	E2	11	117	ESIYCPDSV	23840
HPV56	E2	9	134	ESLSTTIY	23841
HPV56	E2	8	23	ETQRNSFL	23842
HPV56	E2	8	288	ETQRNSFLSHV	23843
HPV56	E2	11	288	GSKNNCMQY	23844
HPV56	E2	9	66	GSKNNCMQYV	23845
HPV56	E2	10	66	GSKNNCMQYVA	23846
HPV56	E2	11	201	HAACVTHIHH	23847
HPV56	E2	10	20	IALESSTTI	23848
HPV56	E2	11	20	IALESSTTIY	23849

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E2	8	11	KACSAIEV	23850
HPV56	E2	10	11	KACSAIEVQI	23851
HPV56	E2	11	11	KACSAIEVQIA	23852
HPV56	E2	8	9	KAKACSAI	23853
HPV56	E2	10	9	KAKACSAIEV	23854
HPV56	E2	11	258	KTLFVDVTSTY	23855
HPV56	E2	8	233	KTPVVHL	23856
HPV56	E2	10	163	KTTTTTSTV	23857
HPV56	E2	11	108	KTYTDFEQEA	23858
HPV56	E2	9	295	LSHVKIPV	23859
HPV56	E2	8	295	LSHVKIPVV	23860
HPV56	E2	10	295	LSHVKIPVVY	23861
HPV56	E2	11	25	LSTIYNNEEW	23862
HPV56	E2	8	46	LTEPKKCF	23863
HPV56	E2	9	292	NSFLSHVKI	23864
HPV56	E2	11	292	NSFLSHVKIPV	23865
HPV56	E2	9	216	NTDSRSRI	23866
HPV56	E2	8	14	SAIEVQIA	23867
HPV56	E2	9	14	SAIEVQIAL	23868
HPV56	E2	10	196	SSRESHAKCV	23869
HPV56	E2	8	143	SSTCRYNV	23870
HPV56	E2	11	143	SSTCRYNVSPV	23871
HPV56	E2	10	144	STCRYNVSPV	23872
HPV56	E2	9	272	STDNKNYSI	23873
HPV56	E2	10	272	STDNKNYSII	23874
HPV56	E2	9	169	STSVGNQDA	23875
HPV56	E2	10	169	STSVGNQDAA	23876
HPV56	E2	11	169	STSVGNQDAAV	23877
HPV56	E2	10	26	STIYNNEEW	23878
HPV56	E2	8	271	TSTDNKNY	23879
HPV56	E2	10	271	TSTDNKNYSI	23880
HPV56	E2	11	271	TSTDNKNYSII	23881
HPV56	E2	10	168	TSTSVGNQDA	23882
HPV56	E2	11	168	TSTSVGNQDAA	23883
HPV56	E2	8	170	TSVGNQDA	23884
HPV56	E2	9	170	TSVGNQDAA	23885
HPV56	E2	10	170	TSVGNQDAAV	23886
HPV56	E2	9	27	TTIYNNEEW	23887
HPV56	E2	11	27	TTIYNNEEWTL	23888
HPV56	E2	11	167	TTTSTSVGNQDA	23889
HPV56	E2	8	165	TTTTTSTV	23890
HPV56	E2	9	164	VAWKYIY	23891
HPV56	E2	8	75	VSHRPGKRPRL	23892
HPV56	E2	11	179	VSPVETVNEY	23893
HPV56	E2	10	150	VSPVETVNEY	23894
HPV56	E2	9	142	VSSTCRYNV	23895

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E2	10	35	WTLRDTCEEL	23896
HPV56	E2	11	35	WTLRDTCEELW	23897
HPV56	E2	9	270	WTSTDNKNY	23898
HPV56	E2	11	270	WTSTDNKNYSI	23899
HPV56	E2	8	278	YSIITIY	23900
HPV56	E2	8	111	YTDFEQEA	23901
HPV56	E2	11	111	YTDFEQEAQKF	23902
HPV56	E6	11	89	ATLESITKKQL	23903
HPV56	E6	8	50	CTELKLVY	23904
HPV56	E6	8	92	ESITKKQL	23905
HPV56	E6	11	92	ESITKKQLCDL	23906
HPV56	E6	8	48	FACTELKL	23907
HPV56	E6	9	48	FACTELKLV	23908
HPV56	E6	10	48	FACTELKLVY	23909
HPV56	E6	10	131	IAHGWTGSCL	23910
HPV56	E6	9	94	ITKKQLCDL	23911
HPV56	E6	10	94	ITKKQLCDLL	23912
HPV56	E6	11	94	ITKKQLCDLLI	23913
HPV56	E6	10	31	LSCVYCKKEL	23914
HPV56	E6	9	18	LSEVLEPL	23915
HPV56	E6	10	18	LSEVLEPLI	23916
HPV56	E6	8	113	LTPEEKQL	23917
HPV56	E6	9	40	LTRAEVYNF	23918
HPV56	E6	10	40	LTRAEVYNFA	23919
HPV56	E6	11	110	QSPLTPEEKQL	23920
HPV56	E6	11	145	QTSREPRESTV	23921
HPV56	E6	8	42	RAEVYNFA	23922
HPV56	E6	9	13	RSLHHLSEV	23923
HPV56	E6	10	13	RSLHHLSEVL	23924
HPV56	E6	10	146	TSREPRESTV	23925
HPV56	E6	9	135	WTGSLGCW	23926
HPV56	E6	8	63	YAVCRVCL	23927
HPV56	E6	9	63	YAVCRVCLL	23928
HPV56	E6	10	63	YAVCRVCLLF	23929
HPV56	E6	11	63	YAVCRVCLLFY	23930
HPV56	E6	9	73	YSKVRKYRY	23931
HPV56	E6	10	73	YSKVRKYRY	23932
HPV56	E6	8	84	YSVYGATL	23933
HPV56	E6	11	84	YSVYGATLESI	23934
HPV56	E7	11	30	DSEDEDEDEV	23935
HPV56	E7	9	92	GALTVTCPL	23936
HPV56	E7	11	92	GALTVTCPLCA	23937
HPV56	E7	8	56	IITCYLIHV	23938
HPV56	E7	9	15	LTPQTEIDL	23939
HPV56	E7	9	94	LTVTCPLCA	23940
HPV56	E7	8	6	PTLQDVL	23941

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E7	10	6	PTLQDVVLEL	23942
HPV56	E7	8	52	QAKQHTCY	23943
HPV56	E7	9	52	QAKQHTCYL	23944
HPV56	E7	10	52	QAKQHTCYLI	23945
HPV56	E7	11	49	QARQAKQHTCY	23946
HPV56	E7	9	77	QSTKEDLRV	23947
HPV56	E7	10	77	QSTKEDLRVV	23948
HPV56	E7	10	31	SSEDEDEDEV	23949
HPV56	E7	8	78	STKEDLRV	23950
HPV56	E7	9	78	STKEDLRVV	23951
HPV56	E7	11	58	ATDSYVKRTSI	23952
HPV56	L1	8	381	ATEQLSKY	23953
HPV56	L1	10	381	ATEQLSKYDA	23954
HPV56	L1	8	327	ATPSGSMI	23955
HPV56	L1	8	514	ATSKKRSA	23956
HPV56	L1	8	444	ATSLEDKY	23957
HPV56	L1	10	444	ATSLEDKYRY	23958
HPV56	L1	11	444	ATSLEDKYRYV	23959
HPV56	L1	10	37	ATWRPSENKV	23960
HPV56	L1	11	37	ATWRPSENKVY	23961
HPV56	L1	9	195	CTPAMGEHW	23962
HPV56	L1	8	389	DARKINQY	23963
HPV56	L1	9	389	DARKINQYL	23964
HPV56	L1	8	274	DAYGDSMW	23965
HPV56	L1	9	274	DAYGDSMWF	23966
HPV56	L1	10	274	DAYGDSMWFY	23967
HPV56	L1	11	274	DAYGDSMWFYL	23968
HPV56	L1	10	486	DSFSTDLDQF	23969
HPV56	L1	8	176	DSRDNISV	23970
HPV56	L1	9	60	DSYVKRTSI	23971
HPV56	L1	10	60	DSYVKRTSIF	23972
HPV56	L1	11	60	DSYVKRTSIFY	23973
HPV56	L1	8	162	DTESSNLA	23974
HPV56	L1	9	236	DTGFGAMDF	23975
HPV56	L1	11	236	DTGFGAMDFKV	23976
HPV56	L1	8	369	DTTRSTNM	23977
HPV56	L1	10	369	DTTRSTNMTI	23978
HPV56	L1	9	337	EAQLFNKPY	23979
HPV56	L1	10	337	EAQLFNKPYWL	23980
HPV56	L1	11	337	ESKAEVPL	23981
HPV56	L1	8	249	ESKAEVPLDI	23982
HPV56	L1	10	249	ESKAEVPLDIV	23983
HPV56	L1	11	249	ESSNLANNV	23984
HPV56	L1	10	164	ESSNLANNVI	23985
HPV56	L1	11	164	ETIPAELY	23986
HPV56	L1	8	303		23987

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	11	271	MSADAYGDSMW	24034
HPV56	L1	10	376	MTISTATEQL	24035
HPV56	L1	8	428	NANLLEDW	24036
HPV56	L1	10	428	NANLLEDWNI	24037
HPV56	L1	9	91	NTKTNIPKV	24038
HPV56	L1	11	91	NTKTNIPKVA	24039
HPV56	L1	9	226	NTPIEDGDM	24040
HPV56	L1	10	226	NTPIEDGDMI	24041
HPV56	L1	11	197	PAMGEHWTKGA	24042
HPV56	L1	11	511	PAVATSKKRSA	24043
HPV56	L1	8	41	PSENKVYL	24044
HPV56	L1	10	329	PSGSMITSEA	24045
HPV56	L1	8	467	PTEKQDPL	24046
HPV56	L1	9	467	PTEKQDPLA	24047
HPV56	L1	11	467	PTEKQDPLAKY	24048
HPV56	L1	8	50	PTPVSKVV	24049
HPV56	L1	9	50	PTPVSKVVA	24050
HPV56	L1	8	522	PTSTSTPA	24051
HPV56	L1	9	260	QSTCKYPDY	24052
HPV56	L1	10	260	QSTCKYPDYL	24053
HPV56	L1	9	297	RAGKVGETI	24054
HPV56	L1	11	297	RAGKVGETIPA	24055
HPV56	L1	9	349	RAQGHNGI	24056
HPV56	L1	11	349	RAQGHNGICW	24057
HPV56	L1	11	519	RSAPTSTSTPA	24058
HPV56	L1	10	372	RSTNMTSTA	24059
HPV56	L1	8	65	RTSIFYHA	24060
HPV56	L1	9	272	SADAYGDSM	24061
HPV56	L1	10	272	SADAYGDSMW	24062
HPV56	L1	11	272	SADAYGDSMWF	24063
HPV56	L1	8	417	SAEVMAYL	24064
HPV56	L1	11	417	SAEVMAYLHNM	24065
HPV56	L1	10	520	SAPTSTSTPA	24066
HPV56	L1	8	100	SAYQYRVF	24067
HPV56	L1	10	100	SAYQYRVFRV	24068
HPV56	L1	9	165	SSNLANNV	24069
HPV56	L1	10	165	SSNLANNVNI	24070
HPV56	L1	11	74	SSRLAVGHPY	24071
HPV56	L1	10	379	STATEQLSKY	24072
HPV56	L1	8	261	STCKYPDY	24073
HPV56	L1	9	261	STCKYPDYL	24074
HPV56	L1	11	261	STCKYPDYLKM	24075
HPV56	L1	9	489	STDLDQFPL	24076
HPV56	L1	9	373	STNMTSTA	24077
HPV56	L1	9	380	TATEQLSKY	24078
HPV56	L1	11	380	TATEQLSKYDA	24079

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	9	437	FALWPVYFF	24126
HPV56	L2	8	382	FASNTTNV	24127
HPV56	L2	10	382	FASNTTNVTA	24128
HPV56	L2	11	200	FAVHSGGTEPI	24129
HPV56	L2	8	296	FSRLGRKA	24130
HPV56	L2	10	296	FSRLGRKATI	24131
HPV56	L2	9	122	FTGSGGFEI	24132
HPV56	L2	8	287	FTTRGGV	24133
HPV56	L2	10	287	FTTRGGVRF	24134
HPV56	L2	9	51	FTYFGGLGI	24135
HPV56	L2	8	314	GARVHYYY	24136
HPV56	L2	10	314	GARVHYYYDI	24137
HPV56	L2	8	64	GSGGRAGY	24138
HPV56	L2	9	64	GSGGRAGYV	24139
HPV56	L2	11	64	GSGGRAGYVPL	24140
HPV56	L2	10	48	GSLFTYFGGL	24141
HPV56	L2	8	75	GSRPSTIV	24142
HPV56	L2	10	75	GSRPSTIVDV	24143
HPV56	L2	9	434	GSSFALWPV	24144
HPV56	L2	10	434	GSSFALWPVY	24145
HPV56	L2	11	434	GSSFALWPVYF	24146
HPV56	L2	8	25	GTCPEDVV	24147
HPV56	L2	11	25	GTCPEDVVNKI	24148
HPV56	L2	8	258	GTDTSLAF	24149
HPV56	L2	10	206	GTEPISSTPI	24150
HPV56	L2	8	62	GTGSGGRA	24151
HPV56	L2	10	62	GTGSGGRAGY	24152
HPV56	L2	11	62	GTGSGGRAGYV	24153
HPV56	L2	10	60	GTGSGGGRA	24154
HPV56	L2	8	310	GTQIGARV	24155
HPV56	L2	10	310	GTQIGARVHY	24156
HPV56	L2	11	310	GTQIGARVHIYY	24157
HPV56	L2	8	190	HSYEEIPM	24158
HPV56	L2	11	190	HSYEEIPMQTF	24159
HPV56	L2	10	221	IAAPRLYRKA	24160
HPV56	L2	11	221	IAAPRLYRKAF	24161
HPV56	L2	9	326	IAQAEIEM	24162
HPV56	L2	10	323	ISPIAQAEI	24163
HPV56	L2	9	210	ISSTPIPGF	24164
HPV56	L2	8	182	ISTPTSGI	24165
HPV56	L2	11	182	ISTPTSGHSY	24166
HPV56	L2	11	157	ITNPLFIDPPV	24167
HPV56	L2	8	143	ITPTSSTV	24168
HPV56	L2	10	143	ITPTSSTVIV	24169
HPV56	L2	10	130	ITSSSTTPA	24170
HPV56	L2	11	130	ITSSSTTPAV	24171

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B58 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	11	370	SAHLPIKPSTL	24218
HPV56	L2	9	339	SANNSFDGL	24219
HPV56	L2	10	339	SANNSFDGLY	24220
HPV56	L2	11	13	SATQLYKTKL	24221
HPV56	L2	8	435	SSFALWPV	24222
HPV56	L2	9	435	SSFALWPVY	24223
HPV56	L2	10	435	SSFALWPVYF	24224
HPV56	L2	11	435	SSFALWPVYFF	24225
HPV56	L2	10	362	SSQSVATPSA	24226
HPV56	L2	8	132	SSSTTPA	24227
HPV56	L2	9	132	SSSTTPAV	24228
HPV56	L2	10	132	SSSTTPAVL	24229
HPV56	L2	9	153	SSTHITNPL	24230
HPV56	L2	10	153	SSTHITNPLF	24231
HPV56	L2	11	153	SSTHITNPLFI	24232
HPV56	L2	8	211	SSTPIPGF	24233
HPV56	L2	11	211	SSTPIPGFRI	24234
HPV56	L2	8	133	SSTTPAV	24235
HPV56	L2	9	133	SSTTPAVL	24236
HPV56	L2	11	133	SSTTPAVLDI	24237
HPV56	L2	11	147	SSTVHVSSTII	24238
HPV56	L2	8	110	SSVIESGA	24239
HPV56	L2	10	110	SSVIESGAGI	24240
HPV56	L2	8	154	STHITNPL	24241
HPV56	L2	9	154	STHITNPLF	24242
HPV56	L2	10	154	STHITNPLFI	24243
HPV56	L2	9	79	STIVDVTPA	24244
HPV56	L2	10	212	STPIPGFRI	24245
HPV56	L2	11	212	STPIPGFRIA	24246
HPV56	L2	10	183	STPTSIGHSY	24247
HPV56	L2	8	134	STTPAVL	24248
HPV56	L2	10	134	STTPAVLDI	24249
HPV56	L2	10	148	STVHVSSTHI	24250
HPV56	L2	11	414	STWPFVPQSPY	24251
HPV56	L2	8	390	TAPLGNVW	24252
HPV56	L2	10	186	TSGIHSYEEI	24253
HPV56	L2	10	261	TSLAFSPSGV	24254
HPV56	L2	11	261	TSLAFSPSGVA	24255
HPV56	L2	9	131	TSSSTTTPA	24256
HPV56	L2	10	131	TSSSTTTPAV	24257
HPV56	L2	11	131	TSSSTTTPAVL	24258
HPV56	L2	8	386	TTNVTAPL	24259
HPV56	L2	11	386	TTNVTAPLGNV	24260
HPV56	L2	8	136	TTPAVLDI	24261
HPV56	L2	9	288	TTRGGVRF	24262
HPV56	L2	9	135	TTTPAVLDI	24263

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	11	2	VAHRATRRKRA	24264
HPV56	L2	8	280	VALHRPAF	24265
HPV56	L2	8	270	VAPDPDFM	24266
HPV56	L2	10	270	VAPDPDFMNI	24267
HPV56	L2	11	270	VAPDPDFMNIV	24268
HPV56	L2	8	366	VATPSAHL	24269
HPV56	L2	10	366	VATPSAHLPI	24270
HPV56	L2	8	249	VSADNPLF	24271
HPV56	L2	10	152	VSSTHITNPL	24272
HPV56	L2	11	152	VSSTHITNPLF	24273
HPV56	L2	8	389	VTAPLGNV	24274
HPV56	L2	9	389	VTAPLGNVW	24275
HPV56	L2	11	236	VTDPAFLDRA	24276
HPV56	L2	9	104	VTLVEESSV	24277
HPV56	L2	10	104	VTLVEESSVI	24278
HPV56	L2	8	84	VTPARPI	24279
HPV56	L2	9	84	VTPARPIV	24280
HPV56	L2	10	84	VTPARPIVV	24281
HPV56	L2	8	40	WADKILQW	24282
HPV56	L2	11	40	WADKILQWGSL	24283
HPV56	L2	8	351	YANIDDEA	24284
HPV56	L2	11	351	YANIDDEAPGL	24285
HPV56	L2	8	402	YSGPDIVL	24286

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	10	112	AICIEKQSRA	24287
HPV16	E1	11	112	AICIEKQSRAA	24288
HPV16	E1	9	539	ALDGNLVSM	24289
HPV16	E1	11	539	ALDGNLVSM DV	24290
HPV16	E1	8	69	ALFTAQEA	24291
HPV16	E1	9	459	ALKRFLQGI	24292
HPV16	E1	9	318	ALYWKYKTI	24293
HPV16	E1	9	206	AMLAKFKEL	24294
HPV16	E1	10	206	AMLAKFKELY	24295
HPV16	E1	10	73	AQEAQHRDA	24296
HPV16	E1	11	73	AQEAQHRDAV	24297
HPV16	E1	10	380	AQLADTNSA	24298
HPV16	E1	9	82	AVQLKRKY	24299
HPV16	E1	10	82	AVQLKRKYL	24300
HPV16	E1	11	82	AVQLKRKYL V	24301
HPV16	E1	10	23	AVVEKKTGDA	24302
HPV16	E1	11	23	AVVEKKTGDAI	24303
HPV16	E1	11	237	CIAAFGLTPSI	24304
HPV16	E1	8	114	CIEKQSRA	24305
HPV16	E1	9	114	CIEKQSRAA	24306
HPV16	E1	8	472	CILLYGAA	24307
HPV16	E1	9	259	CLYLHIQSL	24308
HPV16	E1	10	259	CLYLHIQSLA	24309
HPV16	E1	9	304	CMMIEPKL	24310
HPV16	E1	10	559	CPPLITSNI	24311
HPV16	E1	8	187	CQTPLTNI	24312
HPV16	E1	9	187	CQTPLTNIL	24313
HPV16	E1	11	187	CQTPLTNILNV	24314
HPV16	E1	10	101	CVDNNISPL	24315
HPV16	E1	10	640	CVSGQNTNL	24316
HPV16	E1	8	299	CVSPMCM	24317
HPV16	E1	9	299	CVSPMCMMI	24318
HPV16	E1	10	97	DISGCVDNNI	24319
HPV16	E1	8	368	DIVDDSEI	24320
HPV16	E1	9	368	DIVDDSEIA	24321
HPV16	E1	10	368	DIVDDSEIAY	24322
HPV16	E1	8	548	DVKHRLPLV	24323
HPV16	E1	10	548	DVKHRLPLVQL	24324
HPV16	E1	9	374	EIAYKYAQL	24325
HPV16	E1	10	374	EIAYKYAQLA	24326
HPV16	E1	10	603	ELNDKNWKS	24327
HPV16	E1	11	603	ELNDKNWKSFF	24328
HPV16	E1	8	356	ELSOMVQW	24329
HPV16	E1	9	356	ELSOMVQWA	24330
HPV16	E1	10	356	ELSOMVQWAY	24331
HPV16	E1	10	213	ELYGVSFSEL	24332

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	11	213	ELYGVSFSELV	24333
HPV16	E1	9	308	EPPKLRSTA	24334
HPV16	E1	10	308	EPPKLRSTAA	24335
HPV16	E1	11	308	EPPKLRSTAAA	24336
HPV16	E1	8	138	EVETQQML	24337
HPV16	E1	10	138	EVETQQMLQV	24338
HPV16	E1	9	331	EVYGDTPFW	24339
HPV16	E1	10	331	EVYGDTPFWI	24340
HPV16	E1	8	51	FIVNDNDY	24341
HPV16	E1	9	51	FIVNDNDYL	24342
HPV16	E1	8	392	FLKSNSQA	24343
HPV16	E1	10	392	FLKSNSQAQI	24344
HPV16	E1	11	392	FLKSNSQAQIV	24345
HPV16	E1	11	463	FLQGPKKNCI	24346
HPV16	E1	9	493	FLQGSVCF	24347
HPV16	E1	10	493	FLQGSVCFV	24348
HPV16	E1	9	445	FLRYQGVF	24349
HPV16	E1	10	445	FLRYQGVFEM	24350
HPV16	E1	8	456	FLTALKRF	24351
HPV16	E1	9	456	FLTALKRFL	24352
HPV16	E1	8	453	FMSLTAL	24353
HPV16	E1	11	453	FMSLTALKRF	24354
HPV16	E1	10	592	FPDENGPFV	24355
HPV16	E1	11	592	FPDENGPNVY	24356
HPV16	E1	8	501	FVNSKSHF	24357
HPV16	E1	9	501	FVNSKSHFW	24358
HPV16	E1	10	501	FVNSKSHFWL	24359
HPV16	E1	8	466	GIPKKNCI	24360
HPV16	E1	9	466	GIPKKNCIL	24361
HPV16	E1	10	466	GIPKKNCIL	24362
HPV16	E1	11	466	GIPKKNCILY	24363
HPV16	E1	8	325	GISNISEV	24364
HPV16	E1	9	325	GISNISEVY	24365
HPV16	E1	10	242	GLTPSIADSI	24366
HPV16	E1	8	519	GMLDDATV	24367
HPV16	E1	11	519	GMLDDATVPCW	24368
HPV16	E1	8	487	GMSLMKFL	24369
HPV16	E1	8	272	GMVVLVLLV	24370
HPV16	E1	10	272	GMVVLVLLVRY	24371
HPV16	E1	8	450	GVEFMSFL	24372
HPV16	E1	10	450	GVEFMSFLTA	24373
HPV16	E1	11	450	GVEFMSFLTAL	24374
HPV16	E1	8	179	GVSEHITI	24375
HPV16	E1	8	216	GVSFSELV	24376
HPV16	E1	11	216	GVSFSELVPRF	24377
HPV16	E1	9	263	HIQSLACSW	24378

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	11	263	HIQSLACSWG	24379
HPV16	E1	10	194	ILNVLKTSNA	24380
HPV16	E1	8	467	IPKKNCIL	24381
HPV16	E1	9	467	IPKKNCIL	24382
HPV16	E1	10	467	IPKKNCIL	24383
HPV16	E1	11	340	IQRTVLQHSF	24384
HPV16	E1	8	264	IQSLACSW	24385
HPV16	E1	10	264	IQSLACSWG	24386
HPV16	E1	11	264	IQSLACSWG	24387
HPV16	E1	8	369	IVDDSEIA	24388
HPV16	E1	9	369	IVDDSEIAY	24389
HPV16	E1	11	369	IVDDSEIAYKY	24390
HPV16	E1	8	401	IVKDCATM	24391
HPV16	E1	10	442	IVMFLRYQGV	24392
HPV16	E1	8	52	IVNDNDYL	24393
HPV16	E1	11	52	IVNDNDYLTQA	24394
HPV16	E1	8	517	KIGMLDDA	24395
HPV16	E1	10	517	KIGMLDDATV	24396
HPV16	E1	9	400	KIVKDCATM	24397
HPV16	E1	8	296	KLLCVSPM	24398
HPV16	E1	10	296	KLLCVSPMCM	24399
HPV16	E1	11	296	KLLCVSPMCM	24400
HPV16	E1	9	292	KLLSKLLCV	24401
HPV16	E1	8	311	KLRSTAAA	24402
HPV16	E1	9	311	KLRSTAAAL	24403
HPV16	E1	10	311	KLRSTAAALY	24404
HPV16	E1	11	311	KLRSTAAALYW	24405
HPV16	E1	9	77	KQHRDAVQV	24406
HPV16	E1	10	77	KQHRDAVQVL	24407
HPV16	E1	9	440	KQIVMFLRY	24408
HPV16	E1	8	418	KQMSMSQW	24409
HPV16	E1	9	418	KQMSMSQWI	24410
HPV16	E1	11	418	KQMSMSQWIKY	24411
HPV16	E1	10	117	KQSRAAKRRL	24412
HPV16	E1	11	117	KQSRAAKRRLF	24413
HPV16	E1	8	563	LITSNINA	24414
HPV16	E1	9	297	LLCVSPMCM	24415
HPV16	E1	10	297	LLCVSPMCM	24416
HPV16	E1	11	297	LLCVSPMCM	24417
HPV16	E1	9	562	LLITSNINA	24418
HPV16	E1	8	254	LLQYCYLY	24419
HPV16	E1	9	254	LLQYCYLYL	24420
HPV16	E1	11	254	LLQYCYLYLII	24421
HPV16	E1	8	293	LLSKLLCV	24422
HPV16	E1	11	293	LLSKLLCVSPM	24423
HPV16	E1	9	490	LMKFLQGSV	24424

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	10	490	LMKFLQGSVI	24425
HPV16	E1	10	464	LQIPKKNCI	24426
HPV16	E1	11	464	LQIPKKNCIL	24427
HPV16	E1	8	494	LQGSVICF	24428
HPV16	E1	9	494	LQGSVICFV	24429
HPV16	E1	10	346	LQHSFNDCTF	24430
HPV16	E1	9	510	LQPLADAKI	24431
HPV16	E1	11	510	LQPLADAKIGM	24432
HPV16	E1	8	255	LQYCYLYL	24433
HPV16	E1	10	255	LQYCYLYLHI	24434
HPV16	E1	11	48	LVDIFVNDNDY	24435
HPV16	E1	11	554	LVQLKCPPL	24436
HPV16	E1	10	554	LVQLKCPPL	24437
HPV16	E1	11	554	LVQLKCPPLI	24438
HPV16	E1	11	544	LVSMDEVKRPPL	24439
HPV16	E1	8	91	LVSPLSDI	24440
HPV16	E1	10	583	LVVFTFPNEF	24441
HPV16	E1	11	306	MIPEPKLRSTA	24442
HPV16	E1	8	207	MLAKFKEL	24443
HPV16	E1	9	207	MLAKFKELY	24444
HPV16	E1	11	207	MLAKFKELYGV	24445
HPV16	E1	10	520	MLDDATVPCW	24446
HPV16	E1	8	305	MMIEPKL	24447
HPV16	E1	10	360	MVQWAYDNDI	24448
HPV16	E1	11	360	MVQWAYDNDIV	24449
HPV16	E1	9	273	MVVLVLYR	24450
HPV16	E1	11	193	NILNVLTSTNA	24451
HPV16	E1	10	567	NINAGTDSRW	24452
HPV16	E1	8	105	NISPLKA	24453
HPV16	E1	9	105	NISPLKAI	24454
HPV16	E1	11	105	NISPLKAICI	24455
HPV16	E1	10	535	NLRNALDGNL	24456
HPV16	E1	11	535	NLRNALDGNLV	24457
HPV16	E1	11	599	NPVYELNDKNW	24458
HPV16	E1	8	196	NVLKTSNA	24459
HPV16	E1	10	196	NVLKTSNAKA	24460
HPV16	E1	11	196	NVLKTSNAKAA	24461
HPV16	E1	9	512	PLADAKIGM	24462
HPV16	E1	10	512	PLADAKIGML	24463
HPV16	E1	8	561	PLITTSNI	24464
HPV16	E1	10	561	PLITTSNINA	24465
HPV16	E1	9	94	PLSDISGCV	24466
HPV16	E1	8	190	PLTNILNV	24467
HPV16	E1	9	190	PLTNILNVL	24468
HPV16	E1	10	553	PLVQLKCPPL	24469
HPV16	E1	11	553	PLVQLKCPPL	24470

Table XIV

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV16	E1	11	302	PMCMMEPPKL	24471
HPV16	E1	8	309	PPKLRSTA	24472
HPV16	E1	9	309	PPKLRSTAA	24473
HPV16	E1	10	309	PPKLRSTAAA	24474
HPV16	E1	11	309	PPKLRSTAAAL	24475
HPV16	E1	9	560	PPLLITSNI	24476
HPV16	E1	11	560	PPLLITSNINA	24477
HPV16	E1	10	600	PVYELNDKNW	24478
HPV16	E1	8	441	QIVMFLRY	24479
HPV16	E1	11	441	QIVMFLRYQGV	24480
HPV16	E1	9	381	QLADTNSNA	24481
HPV16	E1	11	381	QLADTNSNASE	24482
HPV16	E1	8	556	QLKCPPLL	24483
HPV16	E1	9	556	QLKCPPLLI	24484
HPV16	E1	8	419	QMSMSQWI	24485
HPV16	E1	10	419	QMSMSQWIKY	24486
HPV16	E1	11	359	QMVQWAYDNDI	24487
HPV16	E1	8	511	QPLADAKI	24488
HPV16	E1	10	511	QPLADAKIGM	24489
HPV16	E1	11	511	QPLADAKIGML	24490
HPV16	E1	9	256	QQYCLYLHI	24491
HPV16	E1	8	84	QVLKRKYL	24492
HPV16	E1	9	84	QVLKRKYLIV	24493
HPV16	E1	10	125	RLFESDSGY	24494
HPV16	E1	11	582	RLVVFTFPNEF	24495
HPV16	E1	11	552	RPLVQLKCPPL	24496
HPV16	E1	9	342	RQTVLQHSF	24497
HPV16	E1	8	432	RVDDGGDW	24498
HPV16	E1	11	432	RVDDGGDWKQI	24499
HPV16	E1	9	246	SIADSIKTL	24500
HPV16	E1	10	246	SIADSIKTLTL	24501
HPV16	E1	9	250	SIKTLLOQY	24502
HPV16	E1	11	250	SIKTLLOQYCL	24503
HPV16	E1	8	266	SLACSWGML	24504
HPV16	E1	9	266	SLACSWGMLV	24505
HPV16	E1	10	266	SLACSWGMLVV	24506
HPV16	E1	11	266	SLACSWGMLVVL	24507
HPV16	E1	8	484	SLFGMSLM	24508
HPV16	E1	10	484	SLFGMSLMKF	24509
HPV16	E1	11	484	SLFGMSLMKFL	24510
HPV16	E1	10	489	SLMKFLQGSV	24511
HPV16	E1	11	489	SLMKFLQGSVI	24512
HPV16	E1	8	634	SLPTFKCV	24513
HPV16	E1	9	546	SMDVKHRPL	24514
HPV16	E1	10	546	SMDVKHRPLV	24515
HPV16	E1	8	421	SMSQWIKY	24516

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	10	93	SPLSDISGCV	24517
HPV16	E1	9	107	SPRLKAICI	24518
HPV16	E1	10	397	SQAKIVKDC	24519
HPV16	E1	8	358	SQMVQWAY	24520
HPV16	E1	11	423	SQWIKYRCDRV	24521
HPV16	E1	10	185	TICQTPLTNI	24522
HPV16	E1	11	185	TICQTPLTNIL	24523
HPV16	E1	9	289	TIEKLLSKL	24524
HPV16	E1	10	289	TIEKLLSKLL	24525
HPV16	E1	8	253	TLLQOYCL	24526
HPV16	E1	9	253	TLLQOYCLY	24527
HPV16	E1	10	253	TLLQOYCLYL	24528
HPV16	E1	9	407	TMCRIHYKRA	24529
HPV16	E1	10	336	TPEWIRQTV	24530
HPV16	E1	11	336	TPEWIRQTVL	24531
HPV16	E1	9	189	TPLTNILNV	24532
HPV16	E1	10	189	TPLTNILNVL	24533
HPV16	E1	8	244	TPSIADSI	24534
HPV16	E1	11	244	TPSIADSIKTL	24535
HPV16	E1	8	60	TQAEETA	24536
HPV16	E1	10	60	TQAEETATAHA	24537
HPV16	E1	11	60	TQAEETATAHAL	24538
HPV16	E1	8	525	TVPCWNYI	24539
HPV16	E1	11	498	VICFVNSKSHF	24540
HPV16	E1	8	85	VLKRKYL	24541
HPV16	E1	11	85	VLKRKYLVSPL	24542
HPV16	E1	9	197	VLKTSNAKA	24543
HPV16	E1	10	197	VLKTSNAKAA	24544
HPV16	E1	11	197	VLKTSNAKAAM	24545
HPV16	E1	11	345	VLOHSENDCTF	24546
HPV16	E1	9	443	VMFLRYQGV	24547
HPV16	E1	11	443	VMFLRYQGVGF	24548
HPV16	E1	11	526	VPCWNYIDDNL	24549
HPV16	E1	8	555	VQLKCPPL	24550
HPV16	E1	9	555	VQLKCPPL	24551
HPV16	E1	10	555	VQLKCPPLI	24552
HPV16	E1	8	83	VQVLKRKY	24553
HPV16	E1	9	83	VQVLKRKYL	24554
HPV16	E1	10	83	VQVLKRKYL	24555
HPV16	E1	9	361	VQWAYDNDI	24556
HPV16	E1	10	361	VQWAYDNDIV	24557
HPV16	E1	9	24	VVEKKTGDA	24558
HPV16	E1	10	24	VVEKKTGDAL	24559
HPV16	E1	9	584	VVFTEPNEF	24560
HPV16	E1	11	584	VVFTEPNEPF	24561
HPV16	E1	8	274	VVLLLVRY	24562

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E1	9	425	WIKYRCDRV	24563
HPV16	E1	8	339	WIORQTVL	24564
HPV16	E1	8	509	WLQPLADA	24565
HPV16	E1	10	509	WLQPLADAKI	24566
HPV16	E1	8	576	WPLYLHNR	24567
HPV16	E1	9	576	WPLYLHNRV	24568
HPV16	E1	10	576	WPLYLHNRVV	24569
HPV16	E1	11	576	WPLYLHNRVVVF	24570
HPV16	E1	9	531	YIDNLRNA	24571
HPV16	E1	10	531	YIDNLRNAL	24572
HPV16	E1	8	261	YLHIQSLA	24573
HPV16	E1	11	261	YLHIQSLACSW	24574
HPV16	E1	8	578	YLHNRLLV	24575
HPV16	E1	9	578	YLHNRLLVVF	24576
HPV16	E1	11	578	YLHNRLLVVFTF	24577
HPV16	E1	10	58	YLTQAETETA	24578
HPV16	E1	9	90	YLVSPSDI	24579
HPV16	E1	9	448	YQGVFMSF	24580
HPV16	E1	10	448	YQGVFMSFL	24581
HPV16	E2	8	72	AIQLQLTL	24582
HPV16	E2	11	72	AIQLQLTLETI	24583
HPV16	E2	11	331	AIVTLTYDSEW	24584
HPV16	E2	9	41	AIYKAREM	24585
HPV16	E2	11	41	AIYKAREMGF	24586
HPV16	E2	11	228	ALGTEETQTTI	24587
HPV16	E2	9	69	ALQAIQLQL	24588
HPV16	E2	11	69	ALQAIQLQLTL	24589
HPV16	E2	11	105	APTGCICKHGY	24590
HPV16	E2	8	63	AVSKNKAL	24591
HPV16	E2	10	63	AVSKNKALQA	24592
HPV16	E2	11	63	AVSKNKALQAI	24593
HPV16	E2	8	314	AVSSTWHW	24594
HPV16	E2	9	109	CIKKHGYTV	24595
HPV16	E2	11	109	CIKKHGYTVEV	24596
HPV16	E2	11	195	CPTSVFSSNEV	24597
HPV16	E2	9	11	CQDKILTHY	24598
HPV16	E2	11	5	CQRLNVCQDKI	24599
HPV16	E2	8	124	DICNTMHY	24600
HPV16	E2	11	124	DICNTMIITNW	24601
HPV16	E2	8	25	DLRDHIDY	24602
HPV16	E2	9	25	DLRDHIDYW	24603
HPV16	E2	9	344	DQFLSQVKI	24604
HPV16	E2	8	96	DVSLEVYL	24605
HPV16	E2	10	96	DVSLEVYLT	24606
HPV16	E2	8	209	EHRQIILA	24607
HPV16	E2	9	74	ELQLTLETI	24608

Table XIV
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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	10	74	BLQLTLETIY	24609
HPV16	E2	11	48	EMGFKHINHOV	24610
HPV16	E2	8	185	EVHAGGQV	24611
HPV16	E2	9	185	EVHAGGQVI	24612
HPV16	E2	10	185	EVHAGGQVIL	24613
HPV16	E2	8	118	EVQFDGDI	24614
HPV16	E2	8	204	EVSSPEII	24615
HPV16	E2	11	100	EVYLTAPTGCI	24616
HPV16	E2	11	346	FLSQVKIPKTI	24617
HPV16	E2	8	168	FVQFKDDA	24618
HPV16	E2	11	168	FVQFKDDAEKY	24619
HPV16	E2	9	163	GRTYFVQF	24620
HPV16	E2	9	156	GLYYVHEGI	24621
HPV16	E2	8	150	GQVDYYGL	24622
HPV16	E2	9	150	GQVDYYGLY	24623
HPV16	E2	10	150	GQVDYYGLYY	24624
HPV16	E2	11	150	GQVDYYGLYYV	24625
HPV16	E2	10	190	GQVILCPTSV	24626
HPV16	E2	11	190	GQVILCPTSVF	24627
HPV16	E2	8	29	HIDYWKHM	24628
HPV16	E2	10	29	HIDYWKHML	24629
HPV16	E2	10	53	HINHQQVVPTL	24630
HPV16	E2	11	53	HINHQQVVPTLA	24631
HPV16	E2	8	136	HIYICEEA	24632
HPV16	E2	10	136	HIYICEEASV	24633
HPV16	E2	8	214	HLANHPAA	24634
HPV16	E2	9	290	HLKGDANTL	24635
HPV16	E2	8	35	HMRLECAI	24636
HPV16	E2	9	35	HMRLECAIY	24637
HPV16	E2	10	35	HMRLECAIYY	24638
HPV16	E2	9	218	HPAATHTKA	24639
HPV16	E2	10	218	HPAATHTKAV	24640
HPV16	E2	11	218	HPAATHTKAVA	24641
HPV16	E2	8	56	HQVVPTLA	24642
HPV16	E2	9	56	HQVVPTLAV	24643
HPV16	E2	11	210	IIRQHLANHPA	24644
HPV16	E2	8	193	ILCPTSVF	24645
HPV16	E2	11	352	IPKTTIVSTGF	24646
HPV16	E2	8	288	IVHLKGDA	24647
HPV16	E2	11	288	IVHLKGDANTL	24648
HPV16	E2	10	332	IVTLTYDSEW	24649
HPV16	E2	8	351	KIPKTTIV	24650
HPV16	E2	8	255	KLLHRDSV	24651
HPV16	E2	11	255	KLLHRDSVDSA	24652
HPV16	E2	11	182	KVWEVIAGGQV	24653
HPV16	E2	10	256	LLHRDSVDSA	24654

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	8	70	LQAIQL	24655
HPV16	E2	10	70	LQAIQLTL	24656
HPV16	E2	8	94	LQDVSLEV	24657
HPV16	E2	9	94	LQDVSLEVY	24658
HPV16	E2	10	94	LQDVSLEVYL	24659
HPV16	E2	8	75	LQLTLETI	24660
HPV16	E2	9	75	LQLTLETIY	24661
HPV16	E2	8	249	NPCHTTKL	24662
HPV16	E2	9	249	NPCHTTKLL	24663
HPV16	E2	8	9	NVCQDKIL	24664
HPV16	E2	11	9	NVCQDKILTHY	24665
HPV16	E2	8	325	NVKHKSAL	24666
HPV16	E2	9	325	NVKIISAV	24667
HPV16	E2	11	325	NVKIISAVTL	24668
HPV16	E2	9	287	PIVILKGDA	24669
HPV16	E2	8	76	QLTLETIY	24670
HPV16	E2	8	151	QVDYGYLY	24671
HPV16	E2	9	151	QVDYGYLYY	24672
HPV16	E2	10	151	QVDYGYLYYV	24673
HPV16	E2	9	191	QVILCPTSV	24674
HPV16	E2	10	191	QVILCPTSVF	24675
HPV16	E2	8	349	QVKIPKTI	24676
HPV16	E2	10	349	QVKIPKTIIV	24677
HPV16	E2	8	57	QVVPITLAV	24678
HPV16	E2	11	278	RINCNSNTTPI	24679
HPV16	E2	8	37	RLECAIYY	24680
HPV16	E2	10	37	RLECAIYYKA	24681
HPV16	E2	9	7	RLNVCQDKI	24682
HPV16	E2	10	7	RLNVCQDKIL	24683
HPV16	E2	9	212	RQHLANHPA	24684
HPV16	E2	10	212	RQHLANIIPAA	24685
HPV16	E2	8	98	SLEVYLTAL	24686
HPV16	E2	9	207	SPEIRQHL	24687
HPV16	E2	10	207	SPEIRQHILA	24688
HPV16	E2	9	348	SQVKIPKTI	24689
HPV16	E2	11	348	SQVKIPKTIIV	24690
HPV16	E2	8	85	SQYSNEKW	24691
HPV16	E2	10	85	SQYSNEKWTL	24692
HPV16	E2	8	261	SVDSAPIL	24693
HPV16	E2	10	261	SVDSAPILTA	24694
HPV16	E2	11	261	SVDSAPILTAF	24695
HPV16	E2	8	198	SVFSSNEV	24696
HPV16	E2	9	144	SVTVVEGQV	24697
HPV16	E2	11	144	SVTVVEGQVDY	24698
HPV16	E2	8	355	TITVSTGF	24699
HPV16	E2	9	355	TITVSTGFM	24700

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E2	11	355	TITVSTGFMSI	24701
HPV16	E2	9	61	TLAVSKNKA	24702
HPV16	E2	10	61	TLAVSKNKAL	24703
HPV16	E2	8	3	TLCQRLNV	24704
HPV16	E2	10	78	TLETYNSQY	24705
HPV16	E2	9	297	TLKCLRYRF	24706
HPV16	E2	9	93	TLQDVSLEV	24707
HPV16	E2	10	93	TLQDVSLEVY	24708
HPV16	E2	11	93	TLQDVSLEVYL	24709
HPV16	E2	8	334	TLTYDSEW	24710
HPV16	E2	10	310	TLYTAVSSTW	24711
HPV16	E2	10	128	TMHYTNWTHI	24712
HPV16	E2	11	128	TMHYTNWTHIY	24713
HPV16	E2	10	286	TPIVHLKGDA	24714
HPV16	E2	10	116	TVEVQFDGDI	24715
HPV16	E2	9	357	TVSTGFMSI	24716
HPV16	E2	9	146	TVVEGQVDY	24717
HPV16	E2	10	146	TVVEGQVDYY	24718
HPV16	E2	8	192	VILCPTSV	24719
HPV16	E2	9	192	VILCPTSVF	24720
HPV16	E2	59	59	VPTLAVSKNKA	24721
HPV16	E2	11	119	VQFDGDICNTM	24722
HPV16	E2	10	169	VQFKDDAEKY	24723
HPV16	E2	8	147	VVEGQVDY	24724
HPV16	E2	9	147	VVEGQVDYY	24725
HPV16	E2	11	147	VVEGQVDYYGL	24726
HPV16	E2	10	341	WQRDQFLSQV	24727
HPV16	E2	8	138	YICEASV	24728
HPV16	E2	10	138	YICEASVTY	24729
HPV16	E2	11	102	YICEASVTYV	24730
HPV16	E2	9	159	YLTAPTGCI	24731
HPV16	E2	9	159	YVHEGIRTY	24732
HPV16	E2	10	159	YVHEGIRTYF	24733
HPV16	E2	11	159	YVHEGIRTYFV	24734
HPV16	E5	8	26	CLLIRPLL	24735
HPV16	E5	9	26	CLLIRPLLL	24736
HPV16	E5	11	26	CLLIRPLLSV	24737
HPV16	E5	9	24	CVCLLIRPL	24738
HPV16	E5	10	24	CVCLLIRPLL	24739
HPV16	E5	8	20	CVLLCVCL	24740
HPV16	E5	9	20	CVLLCVCLL	24741
HPV16	E5	10	20	CVLLCVCLLI	24742
HPV16	E5	8	60	FIVYIIFV	24743
HPV16	E5	9	60	FIVYIIFVY	24744
HPV16	E5	10	60	FIVYIIFVYI	24745
HPV16	E5			FIVYIIFVYI	24746

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E5	9	72	FLIHTHARF	24747
HPV16	E5	10	72	FLIHTHARFL	24748
HPV16	E5	11	72	FLIHTIARFLI	24749
HPV16	E5	8	15	FLLCFCVL	24750
HPV16	E5	9	15	FLLCFCVLL	24751
HPV16	E5	11	15	FLLCFCVLLCV	24752
HPV16	E5	8	66	FVYIPLFL	24753
HPV16	E5	9	66	FVYIPLFI	24754
HPV16	E5	8	64	IFVYIPL	24755
HPV16	E5	9	64	IFVYIPLF	24756
HPV16	E5	10	64	IFVYIPLFL	24757
HPV16	E5	11	64	IFVYIPLFLI	24758
HPV16	E5	8	43	ILVLLW	24759
HPV16	E5	9	43	ILVLLW	24760
HPV16	E5	11	43	ILVLLWITA	24761
HPV16	E5	8	44	ILVLLW	24762
HPV16	E5	10	44	ILVLLWITA	24763
HPV16	E5	11	44	ILVLLWITAA	24764
HPV16	E5	10	69	IFLIITHA	24765
HPV16	E5	8	61	IVYIFVY	24766
HPV16	E5	9	61	IVYIFVYI	24767
HPV16	E5	11	61	IVYIFVYIPL	24768
HPV16	E5	8	73	LHTHARF	24769
HPV16	E5	9	73	LHTHARFL	24770
HPV16	E5	10	73	LHTHARFLI	24771
HPV16	E5	8	42	LILVLL	24772
HPV16	E5	9	42	LILVLLW	24773
HPV16	E5	10	42	LILVLLWI	24774
HPV16	E5	9	28	LIRPLLVS	24775
HPV16	E5	9	11	LLACFLICF	24776
HPV16	E5	11	11	LLACFLICFCV	24777
HPV16	E5	8	16	LLCFCVLL	24778
HPV16	E5	10	16	LLCFCVLLCV	24779
HPV16	E5	8	22	LLCVCLLI	24780
HPV16	E5	11	22	LLCVCLLIRPL	24781
HPV16	E5	8	27	LLIRPLLL	24782
HPV16	E5	10	27	LLIRPLLSV	24783
HPV16	E5	8	32	LLSVSTY	24784
HPV16	E5	11	32	LLSVSTYTSI	24785
HPV16	E5	8	47	LLWITAA	24786
HPV16	E5	10	47	LLWITAAASA	24787
HPV16	E5	11	47	LLWITAAASAF	24788
HPV16	E5	10	33	LLSVSTYTSI	24789
HPV16	E5	11	33	LLSVSTYTSI	24790
HPV16	E5	9	48	LLWITAAASA	24791
HPV16	E5	10	48	LLWITAAASAF	24792

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E5	9	45	LVLLWITA	24793
HPV16	E5	10	45	LVLLWITAA	24794
HPV16	E5	9	3	NLDTASTIL	24795
HPV16	E5	10	3	NLDTASTTLL	24796
HPV16	E5	11	3	NLDTASTTLLA	24797
HPV16	E5	9	70	PLFLIHITHA	24798
HPV16	E5	11	70	PLFLIHITHARF	24799
HPV16	E5	9	31	PLLLSVSTY	24800
HPV16	E5	10	30	PLLLSVSTY	24801
HPV16	E5	8	41	SLIILVLL	24802
HPV16	E5	9	41	SLIILVLLL	24803
HPV16	E5	10	41	SLIILVLLW	24804
HPV16	E5	11	41	SLIILVLLWI	24805
HPV16	E5	8	35	SVSTYISL	24806
HPV16	E5	9	35	SVSTYISLI	24807
HPV16	E5	10	35	SVSTYISLIH	24808
HPV16	E5	11	35	SVSTYISLIH	24809
HPV16	E5	8	10	TLLACFLI	24810
HPV16	E5	10	10	TLLACFLICF	24811
HPV16	E5	8	21	VLLCVCLL	24812
HPV16	E5	9	21	VLLCVCLLI	24813
HPV16	E5	8	46	VLLWITA	24814
HPV16	E5	9	46	VLLWITAA	24815
HPV16	E5	11	46	VLLWITAAASA	24816
HPV16	E5	8	50	WITAASAF	24817
HPV16	E5	11	50	WITAASAFRCF	24818
HPV16	E5	9	63	YIFVYIPL	24819
HPV16	E5	10	63	YIFVYIPLF	24820
HPV16	E5	11	63	YIFVYIPLFL	24821
HPV16	E5	11	68	YIFLIHITHA	24822
HPV16	E6	9	68	AVCDKCLKF	24823
HPV16	E6	10	68	AVCDKCLKFY	24824
HPV16	E6	8	110	CINQKPL	24825
HPV16	E6	10	58	CIVYRDGNPY	24826
HPV16	E6	11	58	CIVYRDGNPYA	24827
HPV16	E6	8	73	CLKFYSKI	24828
HPV16	E6	11	73	CLKFYISKISEY	24829
HPV16	E6	9	118	CPEKQRHL	24830
HPV16	E6	8	37	CVYCKQQL	24831
HPV16	E6	9	37	CVYCKQQLL	24832
HPV16	E6	8	32	DIILECVY	24833
HPV16	E6	9	11	DPQERPKL	24834
HPV16	E6	9	25	ELQTTIHI	24835
HPV16	E6	10	25	ELQTTIHDII	24836
HPV16	E6	11	25	ELQTTIHDII	24837
HPV16	E6	8	96	EQQYNKPL	24838

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV16	E6	11	96	EQYNKPLCDL	24839
HPV16	E6	10	48	EYDYDAFRDL	24840
HPV16	E6	11	9	FQDPQERPKL	24841
HPV16	E6	8	125	HLDKKQRF	24842
HPV16	E6	11	125	HLDKKQRFHNI	24843
HPV16	E6	8	2	HQKRTAMF	24844
HPV16	E6	11	34	ILECVYCKQQL	24845
HPV16	E6	9	59	IVYRDGNPY	24846
HPV16	E6	10	59	IVYRDGNPYA	24847
HPV16	E6	11	59	IVYRDGNPYAV	24848
HPV16	E6	8	79	KISEYRHY	24849
HPV16	E6	10	79	KISEYRHYCY	24850
HPV16	E6	9	18	KLPQLCTEL	24851
HPV16	E6	8	101	KPLCDLLI	24852
HPV16	E6	11	101	KPLCDLLIRCI	24853
HPV16	E6	9	41	KQQLLRREV	24854
HPV16	E6	10	41	KQQLLRREVY	24855
HPV16	E6	11	129	KQRFHNIIRGRW	24856
HPV16	E6	11	122	KQRHLDKKQRF	24857
HPV16	E6	11	107	LIRCINCKPL	24858
HPV16	E6	9	44	LLRREYDF	24859
HPV16	E6	10	44	LLRREYDFA	24860
HPV16	E6	11	44	LLRREYDFAF	24861
HPV16	E6	8	19	LPQLCTEL	24862
HPV16	E6	8	26	LQTTIHDI	24863
HPV16	E6	9	26	LQTTIHDII	24864
HPV16	E6	10	26	LQTTIHDII	24865
HPV16	E6	11	134	NIRGRWTGRCM	24866
HPV16	E6	10	65	NPYAVCDKCL	24867
HPV16	E6	10	102	PLCDLLIRCI	24868
HPV16	E6	11	116	PLCPEEKQRHL	24869
HPV16	E6	8	12	PQERPKL	24870
HPV16	E6	11	12	PQERPKLPQL	24871
HPV16	E6	11	20	PQLCTELQTTI	24872
HPV16	E6	10	21	QLCTELQTTI	24873
HPV16	E6	8	43	QLLRREVY	24874
HPV16	E6	10	43	QLLRREYDYF	24875
HPV16	E6	11	43	QLLRREYDFA	24876
HPV16	E6	8	42	QQLLRREV	24877
HPV16	E6	9	42	QQLLRREVY	24878
HPV16	E6	11	42	QQLLRREYDYF	24879
HPV16	E6	10	97	QYQNKPLCDL	24880
HPV16	E6	11	97	QYQNKPLCDLL	24881
HPV16	E6	8	15	RPRKLPQL	24882
HPV16	E6	11	89	SLYGTTLQYQY	24883
HPV16	E6	10	29	THDIILECV	24884

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	E6	11	29	THDIIECVY	24885
HPV16	E6	10	94	TLEQQYNKPL	24886
HPV16	E7	9	68	CVOSTHVDI	24887
HPV16	E7	8	75	DIRTLEDL	24888
HPV16	E7	9	75	DIRTLEDLL	24889
HPV16	E7	10	75	DIRTLEDLLM	24890
HPV16	E7	9	81	DLLMGTLGI	24891
HPV16	E7	10	81	DLLMGTLGIV	24892
HPV16	E7	9	14	DLQPETIDL	24893
HPV16	E7	10	14	DLQPETDLY	24894
HPV16	E7	8	21	DLYCYEQL	24895
HPV16	E7	9	37	EIDGPAGQA	24896
HPV16	E7	9	46	EPDRAIYNI	24897
HPV16	E7	10	46	EPDRAIYNIV	24898
HPV16	E7	11	40	GPAGQAEPRDA	24899
HPV16	E7	8	43	GQAEPRDA	24900
HPV16	E7	10	43	GQAEPRAHY	24901
HPV16	E7	10	73	HVDIRTLEDL	24902
HPV16	E7	11	73	HVDIRTLEDLL	24903
HPV16	E7	8	82	LLMGTLGI	24904
HPV16	E7	9	82	LLMGTLGIV	24905
HPV16	E7	8	83	LMGTLGIV	24906
HPV16	E7	11	83	LMGTLGIVCPI	24907
HPV16	E7	8	15	LQPETIDL	24908
HPV16	E7	9	15	LQPETDLY	24909
HPV16	E7	11	15	LQPETDLYCY	24910
HPV16	E7	11	12	MLDLQPETIDL	24911
HPV16	E7	8	16	QPETDLY	24912
HPV16	E7	10	16	QPETDLYCY	24913
HPV16	E7	9	66	RLCVQSTHV	24914
HPV16	E7	11	66	RLCVQSTHVDI	24915
HPV16	E7	10	78	TLEDLLMGTL	24916
HPV16	E7	8	86	TLGIVCPI	24917
HPV16	E7	9	7	TLHEYMLDL	24918
HPV16	E7	11	64	TLRLCVQSTHV	24919
HPV16	E7	8	5	TPTLHEYM	24920
HPV16	E7	9	5	TPTLHEYML	24921
HPV16	E7	11	5	TPTLHEYMLDL	24922
HPV16	E7	8	69	VQSTHVDI	24923
HPV16	E7	11	69	VQSTHVDIRTL	24924
HPV16	L1	11	451	AIACQKHPPA	24925
HPV16	L1	9	373	AISTSETTY	24926
HPV16	L1	9	233	AMDFTTLQA	24927
HPV16	L1	10	461	APKEDPLKKY	24928
HPV16	L1	8	342	AQGHNNGI	24929
HPV16	L1	10	342	AQGHNNGICW	24930

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	8	330	AQIFNKPY	24931
HPV16	L1	9	330	AQIFNKPYW	24932
HPV16	L1	10	330	AQIFNKPYWL	24933
HPV16	L1	10	292	AVGENVPDDL	24934
HPV16	L1	11	292	AVGENVPDDLY	24935
HPV16	L1	9	70	AVGHPYFPI	24936
HPV16	L1	10	205	AVNPGDCPPL	24937
HPV16	L1	11	172	CISMDYKQTQL	24938
HPV16	L1	9	183	CLIGCKPPI	24939
HPV16	L1	10	211	CPPLELINTV	24940
HPV16	L1	11	211	CPPLELINTVI	24941
HPV16	L1	8	454	CQKHTPPA	24942
HPV16	L1	9	249	DICTSICKY	24943
HPV16	L1	11	484	DLQFPLGRKF	24944
HPV16	L1	8	397	DLQFIFQL	24945
HPV16	L1	11	397	DLQFIFQLCKI	24946
HPV16	L1	11	300	DLYIKSGSTA	24947
HPV16	L1	9	225	DMVDTGFGA	24948
HPV16	L1	10	225	DMVDTGFGAM	24949
HPV16	L1	8	465	DPLKKYTF	24950
HPV16	L1	9	465	DPLKKYTFW	24951
HPV16	L1	11	465	DPLKKYTFWEV	24952
HPV16	L1	9	486	DQFPLGRKF	24953
HPV16	L1	10	486	DQFPLGRKFL	24954
HPV16	L1	11	486	DQFPLGRKFL	24955
HPV16	L1	9	412	DVMTYIHSM	24956
HPV16	L1	8	17	DVNVYHIF	24957
HPV16	L1	9	17	DVNVYHIF	24958
HPV16	L1	11	17	DVNVYHIFQM	24959
HPV16	L1	8	266	EPYGDSL	24960
HPV16	L1	9	266	EPYGDSLFF	24961
HPV16	L1	10	266	EPYGDSLFF	24962
HPV16	L1	11	266	EPYGDSLFFYL	24963
HPV16	L1	8	279	EQMFVRHL	24964
HPV16	L1	9	279	EQMFVRHLF	24965
HPV16	L1	8	132	EVGRGQPL	24966
HPV16	L1	10	132	EVGRGQPLGV	24967
HPV16	L1	8	474	EVNLKEKF	24968
HPV16	L1	10	474	EVNLKEKFS	24969
HPV16	L1	10	245	EVPLDICTSI	24970
HPV16	L1	8	400	FIFQLCKI	24971
HPV16	L1	10	400	FIFQLCKITL	24972
HPV16	L1	10	5	FIYILVITCY	24973
HPV16	L1	9	494	FLLQAGLKA	24974
HPV16	L1	11	76	FPIKPNNNKI	24975
HPV16	L1	8	488	FPLGRKFL	24976

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	9	488	PPLGRKFLL	24977
HPV16	L1	11	488	FPLGRKFLLQA	24978
HPV16	L1	8	318	FPTPSGSM	24979
HPV16	L1	9	318	FPTPSGSMV	24980
HPV16	L1	8	402	FQLCKITL	24981
HPV16	L1	10	402	FQLCKITLTA	24982
HPV16	L1	11	25	FQMSLWLPSEA	24983
HPV16	L1	9	282	FVRHLFNRA	24984
HPV16	L1	11	282	FVRHLFNRA	24985
HPV16	L1	8	446	FVTSQAIA	24986
HPV16	L1	8	348	GICWGNQL	24987
HPV16	L1	9	348	GICWGNQLF	24988
HPV16	L1	10	348	GICWGNQLFV	24989
HPV16	L1	8	142	GISGHPLI	24990
HPV16	L1	11	142	GISGHPLLNKL	24991
HPV16	L1	8	499	GLKAKPKF	24992
HPV16	L1	10	499	GLKAKPKFTL	24993
HPV16	L1	10	431	GLQPPGGTL	24994
HPV16	L1	9	93	GLQYRVFRI	24995
HPV16	L1	11	93	GLQYRVFRIHL	24996
HPV16	L1	8	136	GQPLGVGI	24997
HPV16	L1	8	166	GVDNRECI	24998
HPV16	L1	10	166	GVDNRECISM	24999
HPV16	L1	10	130	GVEVGRGQPL	25000
HPV16	L1	9	140	GVGISGHPL	25001
HPV16	L1	10	140	GVGISGHPLL	25002
HPV16	L1	8	22	HIFFQMSL	25003
HPV16	L1	9	22	HIFFQMSLW	25004
HPV16	L1	10	22	HIFFQMSLWL	25005
HPV16	L1	8	285	HLFNRA	25006
HPV16	L1	9	285	HLFNRA	25007
HPV16	L1	8	102	HLPDPNKF	25008
HPV16	L1	10	102	HLPDPNKF	25009
HPV16	L1	9	424	ILEDWNFGL	25010
HPV16	L1	11	8	ILVITCYENDV	25011
HPV16	L1	9	86	ILVPKVSGL	25012
HPV16	L1	11	86	ILVPKVSGLQY	25013
HPV16	L1	11	221	IQDGDMDVTGF	25014
HPV16	L1	10	85	KILVPKVSGL	25015
HPV16	L1	8	406	KITLTADV	25016
HPV16	L1	9	406	KITLTADV	25017
HPV16	L1	11	406	KITLTADVMTY	25018
HPV16	L1	8	151	KLDDTENA	25019
HPV16	L1	10	151	KLDDTENASA	25020
HPV16	L1	11	151	KLDDTENASAY	25021
HPV16	L1	11	262	KMVSEPYGDSL	25022

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	11	503	KPKFTLGKRKA	25023
HPV16	L1	8	80	KPNNNKIL	25024
HPV16	L1	9	80	KPNNNKILV	25025
HPV16	L1	8	188	KPIGEHW	25026
HPV16	L1	8	335	KPYWLQRA	25027
HPV16	L1	8	178	KQTQLCLI	25028
HPV16	L1	9	90	KVSGLQYRV	25029
HPV16	L1	10	90	KVSGLQYRVF	25030
HPV16	L1	8	46	KVSTDEY	25031
HPV16	L1	9	46	KVSTDEYV	25032
HPV16	L1	10	46	KVSTDEYVA	25033
HPV16	L1	8	184	LIGCKPPI	25034
HPV16	L1	11	216	LINTVIQDGM	25035
HPV16	L1	8	68	LLAVGIIPY	25036
HPV16	L1	9	68	LLAVGHPYF	25037
HPV16	L1	11	68	LLAVGIIPYPI	25038
HPV16	L1	11	148	LLNKLLDDTENA	25039
HPV16	L1	8	495	LLQAGLKA	25040
HPV16	L1	9	103	LPDPNKFGE	25041
HPV16	L1	9	39	LPPVPVSKV	25042
HPV16	L1	10	39	LPPVPVSKVV	25043
HPV16	L1	8	31	LPSEATVY	25044
HPV16	L1	9	31	LPSEATVYL	25045
HPV16	L1	11	496	LQAGLKAKPKF	25046
HPV16	L1	8	239	LQANKSEV	25047
HPV16	L1	10	239	LQANKSEVPL	25048
HPV16	L1	10	398	LQFIFQLCKI	25049
HPV16	L1	9	432	LQPPPGGTL	25050
HPV16	L1	11	339	LQRAQGHNNGI	25051
HPV16	L1	8	94	LQYRVFRI	25052
HPV16	L1	10	94	LQYRVFRIIL	25053
HPV16	L1	10	9	LVITCYENDV	25054
HPV16	L1	8	87	LVPKVSGL	25055
HPV16	L1	10	87	LVPKVSGLQY	25056
HPV16	L1	8	124	LWVACVGV	25057
HPV16	L1	10	124	LWVACVGVGV	25058
HPV16	L1	8	1	MQVTHYI	25059
HPV16	L1	9	1	MQVTHYIL	25060
HPV16	L1	10	1	MQVTHYILV	25061
HPV16	L1	11	1	MQVTHYILVI	25062
HPV16	L1	8	226	MVDTGFGA	25063
HPV16	L1	9	226	MVDTGFGAM	25064
HPV16	L1	11	226	MVDTGFGAMDF	25065
HPV16	L1	10	263	MVSEPYGDSL	25066
HPV16	L1	11	263	MVSEPYGDSL	25067
HPV16	L1	8	325	MVTSDAQI	25068

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	9	325	MVTSDAQIF	25069
HPV16	L1	11	58	NIYYHAGTSRL	25070
HPV16	L1	8	311	NLASSNYF	25071
HPV16	L1	8	476	NLKEKFS	25072
HPV16	L1	10	476	NLKEKFSADL	25073
HPV16	L1	8	367	NMSLCAAI	25074
HPV16	L1	8	118	NPDQRLV	25075
HPV16	L1	9	118	NPDQRLVW	25076
HPV16	L1	10	118	NPDQRLVWA	25077
HPV16	L1	8	207	NPGDCPPL	25078
HPV16	L1	10	207	NPGDCPPLEL	25079
HPV16	L1	11	207	NPGDCPPLELI	25080
HPV16	L1	8	353	NQLFVTV	25081
HPV16	L1	8	296	NVPDDLVI	25082
HPV16	L1	9	19	NVYHIFQ	25083
HPV16	L1	11	19	NVYHIFQMSL	25084
HPV16	L1	10	77	PIKKPNNKI	25085
HPV16	L1	11	77	PIKKPNNKIL	25086
HPV16	L1	8	247	PLDICTSI	25087
HPV16	L1	11	247	PLDICTSICKY	25088
HPV16	L1	8	213	PLELINTV	25089
HPV16	L1	9	213	PLELINTVI	25090
HPV16	L1	8	489	PLGRKFLL	25091
HPV16	L1	10	489	PLGRKFLLQA	25092
HPV16	L1	11	138	PLGVGISGHP	25093
HPV16	L1	8	466	PLKKTFFW	25094
HPV16	L1	10	466	PLKKTFFWEV	25095
HPV16	L1	9	459	PPAPKEDPL	25096
HPV16	L1	10	435	PPGGTLEDY	25097
HPV16	L1	9	212	PPELINTV	25098
HPV16	L1	10	212	PPELINTVI	25099
HPV16	L1	11	434	PPGGTLEDY	25100
HPV16	L1	8	40	PPVPVSKV	25101
HPV16	L1	9	40	PPVPVSKVV	25102
HPV16	L1	8	41	PVPVSKVV	25103
HPV16	L1	11	43	PVSKVVSTDEY	25104
HPV16	L1	8	331	QIFNKPYW	25105
HPV16	L1	9	331	QIFNKPYWL	25106
HPV16	L1	9	403	QLCKITLTA	25107
HPV16	L1	11	403	QLCKITLTADV	25108
HPV16	L1	11	181	QLCLIGCKPPI	25109
HPV16	L1	8	280	QMFVRIILF	25110
HPV16	L1	11	280	QMFVRIILFNRA	25111
HPV16	L1	10	26	QMSLWLPSEA	25112
HPV16	L1	8	433	QPPPGGTL	25113
HPV16	L1	8	2	QVTFIYIL	25114

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	9	2	QVTFIYILV	25115
HPV16	L1	10	2	QVTFIYILVI	25116
HPV16	L1	10	100	RIHLDPDNKF	25117
HPV16	L1	9	67	RLLAVGHPIY	25118
HPV16	L1	10	67	RLLAVGHPIYF	25119
HPV16	L1	9	123	RLVWACVGV	25120
HPV16	L1	11	123	RLVWACVGVVEV	25121
HPV16	L1	8	253	SICKYPDY	25122
HPV16	L1	9	253	SICKYPDYI	25123
HPV16	L1	11	253	SICKYPDYIKM	25124
HPV16	L1	11	271	SLFFYLRRQEM	25125
HPV16	L1	8	28	SLWLPSEA	25126
HPV16	L1	10	28	SLWLPSEATV	25127
HPV16	L1	11	28	SLWLPSEATVY	25128
HPV16	L1	9	174	SMDYKQTQL	25129
HPV16	L1	11	174	SMDYKQTQLCL	25130
HPV16	L1	10	419	SMNSTILEDW	25131
HPV16	L1	9	324	SMVTSDAQI	25132
HPV16	L1	10	324	SMVTSDAQIF	25133
HPV16	L1	8	199	SPTCNVAV	25134
HPV16	L1	8	423	TILEDWNF	25135
HPV16	L1	10	423	TILEDWNFGL	25136
HPV16	L1	8	439	TLEDYRF	25137
HPV16	L1	9	439	TLEDYRFV	25138
HPV16	L1	9	238	TLQANKSEV	25139
HPV16	L1	11	238	TLQANKSEVPL	25140
HPV16	L1	9	408	TLTADVMTY	25141
HPV16	L1	10	408	TLTADVMTYI	25142
HPV16	L1	10	458	TPAPKEDPL	25143
HPV16	L1	11	320	TPSGSMVTSDA	25144
HPV16	L1	11	514	TPTTSSTTA	25145
HPV16	L1	9	121	TQRLVWACV	25146
HPV16	L1	11	121	TQRLVWACVGV	25147
HPV16	L1	8	219	TVIQDGM	25148
HPV16	L1	9	219	TVIQDGMV	25149
HPV16	L1	11	358	TVVDTRSTNM	25150
HPV16	L1	9	36	TVYLPVPV	25151
HPV16	L1	8	220	VIQDGMV	25152
HPV16	L1	9	10	VITCYENDV	25153
HPV16	L1	11	10	VITCYENDVNV	25154
HPV16	L1	8	413	VMTYIISM	25155
HPV16	L1	9	88	VPKVSGLQY	25156
HPV16	L1	11	88	VPKVSGLQYRV	25157
HPV16	L1	9	246	VPLDICTSI	25158
HPV16	L1	10	359	VVDTRSTNM	25159
HPV16	L1	8	47	VVSTDEYV	25160

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L1	9	47	VVSTDEYVA	25161
HPV16	L1	8	30	WLPSEATV	25162
HPV16	L1	9	30	WLPSEATVY	25163
HPV16	L1	10	30	WLPSEATVYL	25164
HPV16	L1	9	416	YHSMNSTI	25165
HPV16	L1	10	416	YHSMNSTIL	25166
HPV16	L1	9	302	YIKGSGSTA	25167
HPV16	L1	11	302	YIKGSGSTANL	25168
HPV16	L1	9	260	YIKMVSEPY	25169
HPV16	L1	8	7	YILVITCY	25170
HPV16	L1	10	38	YLPVPVPSKV	25171
HPV16	L1	11	38	YLPVPVPSKVV	25172
HPV16	L1	8	389	YLRHGEEY	25173
HPV16	L1	10	389	YLRHGEEYDL	25174
HPV16	L1	8	275	YLRREQMF	25175
HPV16	L1	9	275	YLRREQMFV	25176
HPV16	L1	8	257	YPDYIKMV	25177
HPV16	L1	8	53	YVARTNIY	25178
HPV16	L1	9	53	YVARTNIYV	25179
HPV16	L1	11	53	YVARTNIYYHA	25180
HPV16	L1	9	144	AILDINNTV	25181
HPV16	L2	10	356	ALPTSINNGL	25182
HPV16	L2	11	356	ALPTSINNGLY	25183
HPV16	L2	9	293	ALTSRRGTI	25184
HPV16	L2	11	293	ALTSRRGTIRY	25185
HPV16	L2	9	278	APDPDFLDI	25186
HPV16	L2	10	278	APDPDFLDIV	25187
HPV16	L2	11	278	APDPDFLDIVA	25188
HPV16	L2	8	424	APSLIPTV	25189
HPV16	L2	8	119	APTSVPSI	25190
HPV16	L2	9	87	APVRPPLTV	25191
HPV16	L2	9	28	CPDIIPKV	25192
HPV16	L2	11	31	DIIPKVEGKTI	25193
HPV16	L2	9	147	DINNTVTTV	25194
HPV16	L2	10	415	DIPINTDQA	25195
HPV16	L2	9	285	DIVALHRPA	25196
HPV16	L2	10	285	DIVALHRPAL	25197
HPV16	L2	8	367	DIYADDFI	25198
HPV16	L2	11	239	DPAFITPTKL	25199
HPV16	L2	8	280	DPDFLDIV	25200
HPV16	L2	9	280	DPDFLDIVA	25201
HPV16	L2	10	280	DPDFLDIVAL	25202
HPV16	L2	8	102	DPSIVSLV	25203
HPV16	L2	11	165	DPSVLQPPTPA	25204
HPV16	L2	10	96	DPVGPSPSI	25205
HPV16	L2	11	96	DPVGPSPSIV	25206

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	9	422	DOAPSLIPI	25207
HPV16	L2	10	422	DQAPSLPIV	25208
HPV16	L2	9	43	DQILQYGS	25209
HPV16	L2	11	43	DQILQYGS	25210
HPV16	L2	8	261	DVDNLTLYF	25211
HPV16	L2	8	195	EIPMDTFI	25212
HPV16	L2	9	195	EIPMDTFIV	25213
HPV16	L2	10	340	ELQITIPSTY	25214
HPV16	L2	10	114	FIDAGAPTSV	25215
HPV16	L2	10	373	FITDITSTIPV	25216
HPV16	L2	8	242	FITPTKL	25217
HPV16	L2	9	242	FITPTKLI	25218
HPV16	L2	11	242	FITPTKLITY	25219
HPV16	L2	10	201	FIVSTNPNTV	25220
HPV16	L2	11	283	FLDIVALHRPA	25221
HPV16	L2	8	259	GIDVDNTL	25222
HPV16	L2	9	259	GIDVDNTLY	25223
HPV16	L2	10	259	GIDVDNTLYF	25224
HPV16	L2	10	364	GLYDIYADDF	25225
HPV16	L2	11	364	GLYDIYADDFI	25226
HPV16	L2	10	226	GLYSRTTQQV	25227
HPV16	L2	8	413	GPDIPNI	25228
HPV16	L2	8	99	GPSDPSIV	25229
HPV16	L2	10	99	GPSDPSIVSL	25230
HPV16	L2	11	99	GPSDPSIVSLV	25231
HPV16	L2	9	52	GVFFGGLGI	25232
HPV16	L2	8	439	IIADAGDF	25233
HPV16	L2	9	439	IIADAGDFY	25234
HPV16	L2	10	439	IIADAGDFYL	25235
HPV16	L2	10	32	IIPKVEGKTI	25236
HPV16	L2	11	32	IIPKVEGKTIA	25237
HPV16	L2	8	145	ILDINNTV	25238
HPV16	L2	11	145	ILDINNTVTTV	25239
HPV16	L2	9	45	ILQYGS	25240
HPV16	L2	10	45	ILQYGS	25241
HPV16	L2	11	45	ILQYGS	25242
HPV16	L2	9	394	IPANTTIPF	25243
HPV16	L2	9	400	IPFGGAYNI	25244
HPV16	L2	11	400	IPFGGAYNIPL	25245
HPV16	L2	8	216	IPGSRPVA	25246
HPV16	L2	10	216	IPGSRPVARL	25247
HPV16	L2	9	416	IPINITDQA	25248
HPV16	L2	10	428	IPIVPGSPQY	25249
HPV16	L2	9	33	IPKVEGKTI	25250
HPV16	L2	10	33	IPKVEGKTIA	25251
HPV16	L2	10	73	IPLGTRPPTA	25252

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	9	408	IPLVSGPDI	25253
HPV16	L2	11	408	IPLVSGPDIP	25254
HPV16	L2	8	196	IPMDTFIV	25255
HPV16	L2	8	126	IPPDVSGF	25256
HPV16	L2	10	126	IPPDVSGFSI	25257
HPV16	L2	8	286	IVALHRPA	25258
HPV16	L2	9	286	IVALHRPAL	25259
HPV16	L2	8	430	IVPGSPQY	25260
HPV16	L2	10	430	IVPGSPQYTI	25261
HPV16	L2	11	430	IVPGSPQYTH	25262
HPV16	L2	10	105	IVSLVEETSF	25263
HPV16	L2	11	105	IVSLVEETSI	25264
HPV16	L2	9	202	IVSTNPNTV	25265
HPV16	L2	9	248	KLITYDNPA	25266
HPV16	L2	10	248	KLITYDNPAY	25267
HPV16	L2	10	23	KQAGTCPPDI	25268
HPV16	L2	11	23	KQAGTCPPDII	25269
HPV16	L2	8	35	KVEGKTLA	25270
HPV16	L2	11	35	KVEGKTIADQI	25271
HPV16	L2	8	323	KVIHYVYDF	25272
HPV16	L2	11	323	KVIHYVYDFSTI	25273
HPV16	L2	8	236	KVVDPAFI	25274
HPV16	L2	11	427	LPIVPGSPQY	25275
HPV16	L2	8	249	LITYDNPA	25276
HPV16	L2	9	249	LITYDNPAY	25277
HPV16	L2	9	357	LPTSINNGL	25278
HPV16	L2	10	357	LPTSINNGLY	25279
HPV16	L2	8	462	LPYFFSDV	25280
HPV16	L2	10	462	LPYFFSDVSL	25281
HPV16	L2	11	462	LPYFFSDVSLA	25282
HPV16	L2	9	341	LQTITPSTY	25283
HPV16	L2	8	46	LQYGSMDV	25284
HPV16	L2	9	46	LQYGSMDGVF	25285
HPV16	L2	10	46	LQYGSMDGVFF	25286
HPV16	L2	8	108	LVEETSI	25287
HPV16	L2	10	108	LVEETSFDA	25288
HPV16	L2	9	410	LVSGPDIP	25289
HPV16	L2	11	410	LVSGPDIPNI	25290
HPV16	L2	9	454	MLRKRRL	25291
HPV16	L2	11	454	MLRKRRLPY	25292
HPV16	L2	8	276	NIAPDPDF	25293
HPV16	L2	9	276	NIAPDPDFL	25294
HPV16	L2	11	276	NIAPDPDFLDI	25295
HPV16	L2	10	407	NIPLVSGPDI	25296
HPV16	L2	9	419	NITDQAPSL	25297
HPV16	L2	10	419	NITDQAPSLI	25298

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	9	254	NPAYEGIDV	25299
HPV16	L2	11	206	NPNTVTSSTPI	25300
HPV16	L2	9	160	NPTFTDPSV	25301
HPV16	L2	10	160	NPTFTDPSVL	25302
HPV16	L2	8	417	PINITDQA	25303
HPV16	L2	11	417	PINITDQAPSL	25304
HPV16	L2	8	215	PIPGSRPV	25305
HPV16	L2	9	215	PIPGSRPVA	25306
HPV16	L2	11	215	PIPGSRPVARL	25307
HPV16	L2	9	429	PIVPGSPQY	25308
HPV16	L2	11	429	PIVPGSPQYTI	25309
HPV16	L2	9	74	PLGTRPPTA	25310
HPV16	L2	8	409	PLVSGPDI	25311
HPV16	L2	10	409	PLVSGPDIPI	25312
HPV16	L2	8	29	PPDIIPKV	25313
HPV16	L2	9	127	PPDVSGFSI	25314
HPV16	L2	8	91	PPLTVDPV	25315
HPV16	L2	8	79	PPTATDTL	25316
HPV16	L2	9	79	PPTATDTLA	25317
HPV16	L2	11	79	PPTATDTLAPV	25318
HPV16	L2	11	171	PPTPAETGGHF	25319
HPV16	L2	9	435	PQYTHADA	25320
HPV16	L2	8	221	PVARLGLY	25321
HPV16	L2	9	97	PVGSPDPSI	25322
HPV16	L2	10	97	PVGSPDPSIV	25323
HPV16	L2	10	381	PVPSVPSTSL	25324
HPV16	L2	8	88	PVRPPLTV	25325
HPV16	L2	11	88	PVRPPLTVDPV	25326
HPV16	L2	8	44	QILQYGS	25327
HPV16	L2	10	44	QILQYGS	25328
HPV16	L2	11	44	QILQYGS	25329
HPV16	L2	9	17	QLYKCKQA	25330
HPV16	L2	9	233	QQVKVVDPA	25331
HPV16	L2	10	233	QQVKVVDPAF	25332
HPV16	L2	11	233	QQVKVVDPAFI	25333
HPV16	L2	8	234	QVKVVDPA	25334
HPV16	L2	9	234	QVKVVDPAF	25335
HPV16	L2	10	234	QVKVVDPAFI	25336
HPV16	L2	8	305	RIGNKQTL	25337
HPV16	L2	9	461	RLPYFFSDV	25338
HPV16	L2	11	461	RLPYFFSDVSL	25339
HPV16	L2	11	291	RPALTSRRTGI	25340
HPV16	L2	9	90	RPPLTVDPV	25341
HPV16	L2	9	78	RPTATDTL	25342
HPV16	L2	10	78	RPTATDTLA	25343
HPV16	L2	8	220	RPVARLGL	25344

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	9	220	RPVARLGLY	25345
HPV16	L2	8	319	SIGAKVHY	25346
HPV16	L2	9	319	SIGAKVHY	25347
HPV16	L2	10	319	SIGAKVHY	25348
HPV16	L2	10	274	SINIAPDPDF	25349
HPV16	L2	11	274	SINIAPDPDFL	25350
HPV16	L2	9	360	SINNGLYDI	25351
HPV16	L2	10	360	SINNGLYDIY	25352
HPV16	L2	11	360	SINNGLYDIYA	25353
HPV16	L2	9	125	SIPPDVSGF	25354
HPV16	L2	11	125	SIPPDVSGFSI	25355
HPV16	L2	11	134	SITTSDDTTPA	25356
HPV16	L2	11	104	SIVSLVEETSF	25357
HPV16	L2	8	389	SLSGYIPA	25358
HPV16	L2	8	107	SLVEETSF	25359
HPV16	L2	9	107	SLVEETSF	25360
HPV16	L2	11	107	SLVEETSFIDA	25361
HPV16	L2	9	50	SMGVFFGGL	25362
HPV16	L2	11	50	SMGVFFGGLGI	25363
HPV16	L2	8	434	SPQYTHA	25364
HPV16	L2	10	434	SPQYTHADA	25365
HPV16	L2	9	167	SVLQPTTPA	25366
HPV16	L2	9	122	SVPSIPPDV	25367
HPV16	L2	10	384	SVPSTSLSGY	25368
HPV16	L2	11	384	SVPSTSLSGYI	25369
HPV16	L2	9	40	TIADQILQY	25370
HPV16	L2	8	332	TIDSAAEI	25371
HPV16	L2	10	332	TIDSAAEIEL	25372
HPV16	L2	9	438	THADAGDF	25373
HPV16	L2	10	438	THADAGDFY	25374
HPV16	L2	11	438	THADAGDFYL	25375
HPV16	L2	8	399	TIPFGGAY	25376
HPV16	L2	10	399	TIPFGGAYNI	25377
HPV16	L2	10	187	TISTHNYEEI	25378
HPV16	L2	9	85	TLAPVRPPL	25379
HPV16	L2	11	85	TLAPVRPPLTV	25380
HPV16	L2	10	311	TLTRSGKSI	25381
HPV16	L2	11	265	TLYFSSNDNSI	25382
HPV16	L2	9	173	TPAETGGHF	25383
HPV16	L2	11	173	TPAETGGHFTL	25384
HPV16	L2	11	142	TPALDINNTV	25385
HPV16	L2	9	214	TPIPGSRPV	25386
HPV16	L2	10	214	TPIPGSRPVA	25387
HPV16	L2	11	345	TPSTYTTTIIIA	25388
HPV16	L2	8	245	TPTKLITY	25389
HPV16	L2	11	380	TPVPSVPSTSL	25390

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV16	L2	10	16	TQLYKTKQA	25391
HPV16	L2	10	232	TQQVKVDDPA	25392
HPV16	L2	11	232	TQQVKVDDPAF	25393
HPV16	L2	8	209	TVTSSTPI	25394
HPV16	L2	10	154	TVTTHNNPTF	25395
HPV16	L2	8	168	VLQPTPA	25396
HPV16	L2	9	431	VPGSPQYTI	25397
HPV16	L2	10	431	VPGSPQYTH	25398
HPV16	L2	11	431	VPGSPQYTHA	25399
HPV16	L2	8	123	VPSIPPDV	25400
HPV16	L2	11	123	VPSIPPDVSGF	25401
HPV16	L2	9	385	VPSTLSGY	25402
HPV16	L2	10	385	VPSTLSGYI	25403
HPV16	L2	9	382	VPSVPSTSL	25404
HPV16	L2	8	393	YIPANTTI	25405
HPV16	L2	10	393	YIPANTTIPE	25406
HPV16	L2	11	72	YIPLGTRPPTA	25407
HPV16	L2	8	447	YLHPSYYM	25408
HPV16	L2	9	447	YLHPSYYML	25409
HPV16	L2	10	453	YMLRKRKRRL	25410
HPV18	E1	9	246	AIFGVNPTI	25411
HPV18	E1	10	246	AIFGVNPTIA	25412
HPV18	E1	10	22	AIVDKKTGDV	25413
HPV18	E1	11	22	AIVDKKTGDVI	25414
HPV18	E1	9	546	ALDGNPISI	25415
HPV18	E1	8	68	ALFHAQEV	25416
HPV18	E1	10	387	ALLADSNNA	25417
HPV18	E1	11	387	ALLADSNNA	25418
HPV18	E1	9	325	ALYWYRTGI	25419
HPV18	E1	10	213	AMLAVFKDTY	25420
HPV18	E1	11	526	AMLDDATTTCW	25421
HPV18	E1	10	66	AQALFHAQEV	25422
HPV18	E1	8	72	AQEVHND	25423
HPV18	E1	10	72	AQEVHND	25424
HPV18	E1	11	72	AQEVHND	25425
HPV18	E1	8	422	AQEVHND	25426
HPV18	E1	11	422	AQEVHND	25427
HPV18	E1	9	199	AQEVHND	25428
HPV18	E1	11	79	AQEVHND	25429
HPV18	E1	9	216	AVFKDTYGL	25430
HPV18	E1	11	216	AVFKDTYGLSF	25431
HPV18	E1	8	273	CLDCKWGV	25432
HPV18	E1	9	273	CLDCKWGVLI	25433
HPV18	E1	10	273	CLDCKWGVLI	25434
HPV18	E1	11	273	CLDCKWGVLI	25435
HPV18	E1	8	479	CLVFCGPA	25436

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	9	311	CMLIQPPKL	25437
HPV18	E1	10	566	CPHLLTTNI	25438
HPV18	E1	10	404	CQAKYLKDCA	25439
HPV18	E1	9	628	DLHEEEDA	25440
HPV18	E1	11	203	DLKVNKKQGA	25441
HPV18	E1	8	363	DLSEMVQW	25442
HPV18	E1	9	363	DLSEMVQWA	25443
HPV18	E1	10	363	DLSEMVQWAF	25444
HPV18	E1	8	381	DMAFEYAL	25445
HPV18	E1	9	381	DMAFEYALL	25446
HPV18	E1	10	381	DMAFEYALLA	25447
HPV18	E1	11	30	DVISDDEDNA	25448
HPV18	E1	10	610	EINDKNWKCF	25449
HPV18	E1	11	610	EINDKNWKCF	25450
HPV18	E1	11	115	EISLNSGQKA	25451
HPV18	E1	8	62	ELETAQAL	25452
HPV18	E1	9	62	ELETAQALF	25453
HPV18	E1	11	62	ELETAQALFHA	25454
HPV18	E1	9	108	ELSPRLQEI	25455
HPV18	E1	11	108	ELSPRLQEISL	25456
HPV18	E1	8	375	ELTDESDM	25457
HPV18	E1	9	375	ELTDESDMA	25458
HPV18	E1	10	375	ELTDESDMAF	25459
HPV18	E1	11	366	EMVQWAFDNEL	25460
HPV18	E1	8	518	EPLTDTKV	25461
HPV18	E1	9	518	EPLTDTKVA	25462
HPV18	E1	10	518	EPLTDTKVAM	25463
HPV18	E1	11	518	EPLTDTKVAML	25464
HPV18	E1	8	59	EQAEELETA	25465
HPV18	E1	10	59	EQAEELETAQA	25466
HPV18	E1	11	59	EQAEELETAQAL	25467
HPV18	E1	10	104	EVDTELSPL	25468
HPV18	E1	9	141	EVEATQIQV	25469
HPV18	E1	8	74	EVHNDQV	25470
HPV18	E1	9	74	EVHNDQVL	25471
HPV18	E1	11	74	EVHNDQVVLHV	25472
HPV18	E1	9	338	EVMGDTPEW	25473
HPV18	E1	10	338	EVMGDTPEWI	25474
HPV18	E1	8	50	FIDTQGT	25475
HPV18	E1	8	497	FIHFIQGA	25476
HPV18	E1	9	497	FIHFIQGAV	25477
HPV18	E1	10	497	FIHFIQGA VI	25478
HPV18	E1	10	265	FILYAHIQCL	25479
HPV18	E1	9	500	FIQGAVISF	25480
HPV18	E1	10	500	FIQGAVISFV	25481
HPV18	E1	8	460	FITFLGAL	25482

[illegible]

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV18	E1	11	460	FITFLGALKSF	25483
HPV18	E1	8	463	FLGALKSF	25484
HPV18	E1	9	463	FLGALKSFL	25485
HPV18	E1	11	470	FLKGTPKKNCL	25486
HPV18	E1	8	399	FLKSNCSQA	25487
HPV18	E1	10	399	FLKSNCQAKY	25488
HPV18	E1	11	399	FLKSNCQAKYL	25489
HPV18	E1	9	452	FLRYQQIEF	25490
HPV18	E1	10	452	FLRYQQIEFI	25491
HPV18	E1	10	599	FPPDKNGNPV	25492
HPV18	E1	11	599	FPPDKNGNPVY	25493
HPV18	E1	8	508	FVNSTSIIF	25494
HPV18	E1	9	508	FVNSTSIHF	25495
HPV18	E1	10	508	FVNSTSHFWL	25496
HPV18	E1	9	356	GIDDSNFDL	25497
HPV18	E1	8	332	GISNISEV	25498
HPV18	E1	9	332	GISNISEVM	25499
HPV18	E1	8	223	GLSFTDLV	25500
HPV18	E1	11	223	GLSFTDLVRNF	25501
HPV18	E1	8	300	GLSTLLHV	25502
HPV18	E1	8	494	GMSFIHFI	25503
HPV18	E1	11	494	GMSFIHFIQGA	25504
HPV18	E1	9	484	GPANTGKSY	25505
HPV18	E1	10	484	GPANTGKSYF	25506
HPV18	E1	9	121	GQKKAKRRL	25507
HPV18	E1	10	121	GQKKAKRRLF	25508
HPV18	E1	8	279	GVLILALL	25509
HPV18	E1	10	279	GVLILALLRY	25510
HPV18	E1	10	249	GVNPTIAEGF	25511
HPV18	E1	9	270	HIQCLDCKW	25512
HPV18	E1	11	270	HIQCLDCKWGV	25513
HPV18	E1	8	576	HPAKDNRW	25514
HPV18	E1	10	576	HPAKDNRWPPY	25515
HPV18	E1	11	576	HPAKDNRWPYL	25516
HPV18	E1	8	83	HVLKRKFA	25517
HPV18	E1	8	306	HVPETCML	25518
HPV18	E1	9	306	HVPETCMLI	25519
HPV18	E1	11	352	IIQHIGDDSNF	25520
HPV18	E1	10	569	ILLTTNIHPA	25521
HPV18	E1	9	266	ILYAHIOCL	25522
HPV18	E1	8	271	IQCLDCKW	25523
HPV18	E1	10	271	IQCLDCKWGV	25524
HPV18	E1	11	271	IQCLDCKWGVL	25525
HPV18	E1	8	501	IQGAVISF	25526
HPV18	E1	9	501	IQGAVISFV	25527
HPV18	E1	10	353	IQHGIDDSNF	25528

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	8	562	IQLKCPPI	25529
HPV18	E1	9	562	IQLKCPPII	25530
HPV18	E1	10	562	IQLKCPPIII	25531
HPV18	E1	8	262	IQPFILYA	25532
HPV18	E1	10	262	IQPFILYAH	25533
HPV18	E1	10	314	IQPPKLRSSV	25534
HPV18	E1	11	314	IQPPKLRSSVA	25535
HPV18	E1	11	347	IQRLTIQHGI	25536
HPV18	E1	9	23	IVDKKTGDV	25537
HPV18	E1	10	23	IVDKKTGDVI	25538
HPV18	E1	10	449	IVQFLRYQQI	25539
HPV18	E1	8	439	KIDEGGDW	25540
HPV18	E1	11	439	KIDEGGDWRPI	25541
HPV18	E1	11	647	KLRAGQNHRL	25542
HPV18	E1	8	318	KLRSSVAA	25543
HPV18	E1	9	318	KLRSSVAAAL	25544
HPV18	E1	10	318	KLRSSVAAALY	25545
HPV18	E1	11	318	KLRSSVAAALYW	25546
HPV18	E1	11	559	KPLIQLKCPPI	25547
HPV18	E1	8	210	KQGAMLAV	25548
HPV18	E1	9	210	KQGAMLAVF	25549
HPV18	E1	8	524	KVAMLDDA	25550
HPV18	E1	8	206	KVNNKQGA	25551
HPV18	E1	9	206	KVNNKQGAM	25552
HPV18	E1	10	206	KVNNKQGAML	25553
HPV18	E1	11	206	KVNNKQGAMLA	25554
HPV18	E1	8	281	LILALLRY	25555
HPV18	E1	9	561	LIQLKCPPI	25556
HPV18	E1	10	561	LIQLKCPPII	25557
HPV18	E1	11	561	LIQLKCPPIII	25558
HPV18	E1	8	261	LIQPFILY	25559
HPV18	E1	9	261	LIQPFILYA	25560
HPV18	E1	11	261	LIQPFILYAH	25561
HPV18	E1	11	313	LIQPPKLRSSV	25562
HPV18	E1	9	388	LLADSNNA	25563
HPV18	E1	10	388	LLADSNNAA	25564
HPV18	E1	11	388	LLADSNNAAA	25565
HPV18	E1	9	304	LLHVPETCM	25566
HPV18	E1	10	304	LLHVPETCMI	25567
HPV18	E1	11	304	LLHVPETCMLI	25568
HPV18	E1	10	204	LLKVNKKQGA	25569
HPV18	E1	11	204	LLKVNKKQGAM	25570
HPV18	E1	11	285	LLRYKCGKSR	25571
HPV18	E1	9	570	LLTTNIIPA	25572
HPV18	E1	9	214	MLAVFKDTY	25573
HPV18	E1	11	214	MLAVFKDTYGL	25574

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	10	527	MLDDATTTCW	25575
HPV18	E1	8	312	MLIQPKL	25576
HPV18	E1	11	47	MVDFDTQGT	25577
HPV18	E1	10	367	MVQWAFDNEL	25578
HPV18	E1	11	188	NIENVNPQCTI	25579
HPV18	E1	10	574	NIIPAKDNRW	25580
HPV18	E1	8	428	NMSQWIRF	25581
HPV18	E1	8	641	NPGTFKL	25582
HPV18	E1	10	641	NPGTFKLRA	25583
HPV18	E1	9	193	NPQCTIAQL	25584
HPV18	E1	8	251	NPTIAEGF	25585
HPV18	E1	11	251	NPTIAEGFKTL	25586
HPV18	E1	11	606	NPVYEINDKNW	25587
HPV18	E1	10	158	NVCSGGSTEAL	25588
HPV18	E1	11	158	NVCSGGSTEAI	25589
HPV18	E1	8	191	NVNPQCTI	25590
HPV18	E1	9	191	NVNPQCTIA	25591
HPV18	E1	11	191	NVNPQCTIAQL	25592
HPV18	E1	8	568	PILLTTNI	25593
HPV18	E1	11	568	PILLTTNIHIPA	25594
HPV18	E1	11	551	PISIDRKHKPL	25595
HPV18	E1	8	448	PIVQFLRY	25596
HPV18	E1	11	448	PIVQFLRYQOI	25597
HPV18	E1	8	98	PLGERLEV	25598
HPV18	E1	10	560	PLIQLKCPPI	25599
HPV18	E1	11	560	PLIQLKCPPI	25600
HPV18	E1	8	519	PLTDTKVA	25601
HPV18	E1	9	519	PLTDTKVAM	25602
HPV18	E1	10	519	PLTDTKVAML	25603
HPV18	E1	9	567	PPILLTTNI	25604
HPV18	E1	8	316	PPKLRSSV	25605
HPV18	E1	9	316	PPKLRSSVA	25606
HPV18	E1	10	316	PPKLRSSVAA	25607
HPV18	E1	11	316	PPKLRSSVAAL	25608
HPV18	E1	8	194	PQCTIAQL	25609
HPV18	E1	11	194	PQCTIAQLKDL	25610
HPV18	E1	10	607	PVYEINDKNW	25611
HPV18	E1	8	457	QIEFITFL	25612
HPV18	E1	10	457	QIEFITFLGA	25613
HPV18	E1	11	457	QIEFITFLGAL	25614
HPV18	E1	8	563	QLKCPPI	25615
HPV18	E1	9	563	QLKCPPI	25616
HPV18	E1	8	200	QLKDLLKV	25617
HPV18	E1	8	426	QMNMMSQWI	25618
HPV18	E1	10	426	QMNMMSQWIRF	25619
HPV18	E1	9	263	QPFIYAIH	25620

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	9	315	QPPKLRSSV	25621
HPV18	E1	10	315	QPPKLRSSVA	25622
HPV18	E1	11	315	QPPKLRSSVAA	25623
HPV18	E1	8	456	QQIEFITF	25624
HPV18	E1	9	456	QQIEFITFL	25625
HPV18	E1	11	456	QQIEFITFLGA	25626
HPV18	E1	10	80	QVLHVLKRKF	25627
HPV18	E1	11	80	QVLHVLKRKFA	25628
HPV18	E1	10	589	RITVFEFPNA	25629
HPV18	E1	11	589	RITVFEFPNAF	25630
HPV18	E1	11	626	RLDLHEEEDA	25631
HPV18	E1	8	102	RLVDTEL	25632
HPV18	E1	10	128	RLFTISDSGY	25633
HPV18	E1	9	349	RLTIQHGI	25634
HPV18	E1	8	294	RLTVAKGL	25635
HPV18	E1	11	294	RLTVAKGLSTL	25636
HPV18	E1	9	447	RPVQFLRY	25637
HPV18	E1	8	425	RQNMNSQW	25638
HPV18	E1	9	425	RQNMNSQWI	25639
HPV18	E1	11	425	RQNMNSQWIRF	25640
HPV18	E1	9	553	SIDRKHKPL	25641
HPV18	E1	10	553	SIDRKHKPLI	25642
HPV18	E1	9	117	SLNSGQKKA	25643
HPV18	E1	9	97	SPLGERLEV	25644
HPV18	E1	110	110	SPRLQEISL	25645
HPV18	E1	11	430	SQWIRFCSKI	25646
HPV18	E1	8	322	SVAALYWY	25647
HPV18	E1	11	179	SVDGTSNDSNI	25648
HPV18	E1	9	253	TIAEGFKTL	25649
HPV18	E1	10	253	TIAEGFKTLI	25650
HPV18	E1	8	197	TIAQKDL	25651
HPV18	E1	9	197	TIAQKDLL	25652
HPV18	E1	11	197	TIAQKDLLKV	25653
HPV18	E1	8	260	TLIQPHIL	25654
HPV18	E1	9	260	TLIQPHILY	25655
HPV18	E1	10	260	TLIQPHILYA	25656
HPV18	E1	10	303	TLLHVPETCM	25657
HPV18	E1	11	303	TLLHVPETCML	25658
HPV18	E1	9	414	TMCKHYRRA	25659
HPV18	E1	8	343	TPEWQRL	25660
HPV18	E1	10	343	TPEWQRLTI	25661
HPV18	E1	11	343	TPEWQRLTII	25662
HPV18	E1	8	474	TPKKNCLV	25663
HPV18	E1	9	474	TPKKNCLVF	25664
HPV18	E1	9	53	TQGTFCQA	25665
HPV18	E1	11	53	TQGTFCQAEL	25666

GenBank
Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E1	9	296	TVAKGLSTL	25667
HPV18	E1	10	296	TVAKGLSTLL	25668
HPV18	E1	8	591	TVFEPNA	25669
HPV18	E1	9	591	TVFEPNAP	25670
HPV18	E1	11	591	TVFEPNAPPF	25671
HPV18	E1	10	31	VISDDEDNA	25672
HPV18	E1	11	505	VISFVNSTSHF	25673
HPV18	E1	9	81	VLHVLKRKF	25674
HPV18	E1	10	81	VLHVLKRKFA	25675
HPV18	E1	9	280	VLJLALLRY	25676
HPV18	E1	8	339	VMGDTPEW	25677
HPV18	E1	9	339	VMGDTPEWI	25678
HPV18	E1	8	307	VPETCMLI	25679
HPV18	E1	9	450	VQFLRYQQI	25680
HPV18	E1	11	450	VQFLRYQQIEF	25681
HPV18	E1	9	368	VQWAFDNEL	25682
HPV18	E1	8	346	WIQRLTI	25683
HPV18	E1	9	432	WIFRCSKI	25684
HPV18	E1	10	516	WLEPLTDTKV	25685
HPV18	E1	11	516	WLEPLTDTKVA	25686
HPV18	E1	8	583	WPYLESRI	25687
HPV18	E1	10	583	WPYLESRITY	25688
HPV18	E1	11	583	WPYLESRITVF	25689
HPV18	E1	8	243	WVTAIFGV	25690
HPV18	E1	8	585	YLESRITY	25691
HPV18	E1	9	585	YLESRITVF	25692
HPV18	E1	11	585	YLESRITVFEF	25693
HPV18	E1	8	408	YLKDCATM	25694
HPV18	E1	11	542	YMRNALDGNPI	25695
HPV18	E1	9	455	YQQIEHIF	25696
HPV18	E1	10	455	YQQIEHITFL	25697
HPV18	E2	8	76	AIELQMAL	25698
HPV18	E2	11	76	AIELQMALQGL	25699
HPV18	E2	11	45	AIFFAAREHGI	25700
HPV18	E2	8	351	AIPDSVQI	25701
HPV18	E2	9	351	AIPDSVQIL	25702
HPV18	E2	10	351	AIPDSVQILV	25703
HPV18	E2	10	82	ALQGLAQSRV	25704
HPV18	E2	10	87	AQSRVKTEDW	25705
HPV18	E2	10	132	CMTYVAWDSV	25706
HPV18	E2	11	132	CMTYVAWDSVY	25707
HPV18	E2	10	14	CVQDKIIDIY	25708
HPV18	E2	8	156	CVSHRGLY	25709
HPV18	E2	9	156	CVSHRGLYY	25710
HPV18	E2	10	156	CVSHRGLYYV	25711
HPV18	E2	8	29	DIDSQIQY	25712

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	9	29	DIDSQIQYW	25713
HPV18	E2	11	29	DIDSQIQYWQL	25714
HPV18	E2	8	315	DISSTWIW	25715
HPV18	E2	11	315	DISSTWIWTGA	25716
HPV18	E2	9	78	ELQMALQGL	25717
HPV18	E2	10	78	ELQMALQGLA	25718
HPV18	E2	11	104	ELWNTPTTHCF	25719
HPV18	E2	8	190	EVHFGNNV	25720
HPV18	E2	9	190	EVHFGNNVI	25721
HPV18	E2	11	346	FLNTVAIPDSV	25722
HPV18	E2	9	54	GIQTLNHQV	25723
HPV18	E2	10	54	GIQTLNHQVV	25724
HPV18	E2	11	253	GLAEKQHCQGPV	25725
HPV18	E2	9	161	GLYYVKEGY	25726
HPV18	E2	9	261	GPVNPLLGA	25727
HPV18	E2	10	261	GPVNPLLGAA	25728
HPV18	E2	8	118	GQTVQVYF	25729
HPV18	E2	9	291	HLKGDNRSL	25730
HPV18	E2	9	60	HQVVPAYNI	25731
HPV18	E2	11	289	IIILKGDNRSL	25732
HPV18	E2	8	358	ILVGYMTM	25733
HPV18	E2	8	352	IPDSVQIL	25734
HPV18	E2	9	352	IPDSVQILV	25735
HPV18	E2	11	352	IPDSVQILVGY	25736
HPV18	E2	8	55	IQTLNHQV	25737
HPV18	E2	9	55	IQTLNHQVV	25738
HPV18	E2	11	55	IQTLNHQVVPA	25739
HPV18	E2	9	34	IQYWQLIRW	25740
HPV18	E2	10	280	KLCSGNTTPI	25741
HPV18	E2	11	280	KLCSGNTTPII	25742
HPV18	E2	10	257	KQHCQPVNPL	25743
HPV18	E2	11	257	KQHCQPVNPLL	25744
HPV18	E2	10	219	KQLQHTPSY	25745
HPV18	E2	8	39	LIRWENAI	25746
HPV18	E2	9	39	LIRWENAIIF	25747
HPV18	E2	10	39	LIRWENAIFF	25748
HPV18	E2	11	39	LIRWENAIFFA	25749
HPV18	E2	8	98	LQDTCEEL	25750
HPV18	E2	9	98	LQDTCEELW	25751
HPV18	E2	9	83	LQGLAQSRV	25752
HPV18	E2	8	221	LQHTPSY	25753
HPV18	E2	8	79	LQMALQGL	25754
HPV18	E2	9	79	LQMALQGLA	25755
HPV18	E2	8	1	MQTPKETL	25756
HPV18	E2	10	67	NISKSAHKA	25757
HPV18	E2	11	67	NISKSAHKAI	25758

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	9	196	NVIDCNDMS	25759
HPV18	E2	8	262	PVNPLGA	25760
HPV18	E2	9	262	PVNPLGAA	25761
HPV18	E2	9	357	QILVGYMTM	25762
HPV18	E2	8	33	QIQYWOLI	25763
HPV18	E2	10	33	QIQYWQLIRW	25764
HPV18	E2	8	38	QLIRWENA	25765
HPV18	E2	9	38	QLIRWENAI	25766
HPV18	E2	10	38	QLIRWENAI	25767
HPV18	E2	11	38	QLIRWENAIFF	25768
HPV18	E2	9	220	QLQHTSPY	25769
HPV18	E2	8	80	QMALQGLA	25770
HPV18	E2	61	61	QVVPAYNI	25771
HPV18	E2	9	305	RLRKHSYH	25772
HPV18	E2	9	11	RLSCVQDKI	25773
HPV18	E2	10	11	RLSCVQDKII	25774
HPV18	E2	8	248	RPGLCGLA	25775
HPV18	E2	9	298	SLKCLRYRL	25776
HPV18	E2	10	203	SMCSTDDTV	25777
HPV18	E2	9	226	SPYSSTVS	25778
HPV18	E2	8	32	SQIQYWQL	25779
HPV18	E2	9	32	SQIQYWQLI	25780
HPV18	E2	11	32	SQIQYWQLIRW	25781
HPV18	E2	8	233	SVGTAKTY	25782
HPV18	E2	8	355	SVQILVGY	25783
HPV18	E2	9	355	SVQILVGYM	25784
HPV18	E2	11	355	SVQILVGYMTM	25785
HPV18	E2	8	140	SVYYMTDA	25786
HPV18	E2	11	140	SVYYMTDAGTW	25787
HPV18	E2	9	57	TLNHQVVPA	25788
HPV18	E2	10	57	TLNHQVVPA	25789
HPV18	E2	9	97	TLQDTCEEL	25790
HPV18	E2	10	97	TLQDTCEELW	25791
HPV18	E2	9	7	TLSERLSCV	25792
HPV18	E2	10	3	TPKETLSERL	25793
HPV18	E2	9	224	TPSPYSSTV	25794
HPV18	E2	11	224	TPSPYSSTVS	25795
HPV18	E2	11	271	TPTGNNKRRKL	25796
HPV18	E2	10	341	TQRTKFLNTV	25797
HPV18	E2	11	341	TQRTKFLNTVA	25798
HPV18	E2	8	349	TVAIPDSV	25799
HPV18	E2	10	349	TVAIPDSVQI	25800
HPV18	E2	11	349	TVAIPDSVQIL	25801
HPV18	E2	8	211	TVSATQLV	25802
HPV18	E2	11	211	TVSATQLVKQL	25803
HPV18	E2	10	231	TVSVGTAKTY	25804

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E2	8	197	VIDCNDMS	25805
HPV18	E2	11	63	VPAYNISKSA	25806
HPV18	E2	9	15	VQDKIIDHY	25807
HPV18	E2	8	356	VQILVGYM	25808
HPV18	E2	10	356	VQILVGYMTM	25809
HPV18	E2	9	37	WQLRWENA	25810
HPV18	E2	10	37	WQLRWENAI	25811
HPV18	E2	11	37	WQLRWENAI	25812
HPV18	E2	11	173	YIEFKSECEKY	25813
HPV18	E2	8	143	YMTDAGTW	25814
HPV18	E2	8	135	YVAWDSVY	25815
HPV18	E2	9	135	YVAWDSVY	25816
HPV18	E2	10	135	YVAWDSVY	25817
HPV18	E2	9	164	YVKEGYNTF	25818
HPV18	E2	10	164	YVKEGYNTFY	25819
HPV18	E2	11	164	YVKEGYNTFY	25820
HPV18	E5	8	27	CMCAYAWV	25821
HPV18	E5	9	27	CMCAYAWVL	25822
HPV18	E5	10	27	CMCAYAWVLV	25823
HPV18	E5	11	27	CMCAYAWVLVF	25824
HPV18	E5	8	13	CMYVCCHV	25825
HPV18	E5	10	13	CMYVCCHVPL	25826
HPV18	E5	11	13	CMYVCCHVPL	25827
HPV18	E5	10	11	CVCMYVCCHV	25828
HPV18	E5	9	6	FLFCFCVCM	25829
HPV18	E5	10	6	FLFCFCVCMY	25830
HPV18	E5	11	6	FLFCFCVCMYV	25831
HPV18	E5	8	57	FLLPMLLL	25832
HPV18	E5	10	57	FLLPMLLLHI	25833
HPV18	E5	11	37	FVYIVVITSPA	25834
HPV18	E5	8	65	HHHAILSL	25835
HPV18	E5	8	19	HVPLLPSPV	25836
HPV18	E5	10	19	HVPLLPSPVCM	25837
HPV18	E5	8	40	IVVITSPA	25838
HPV18	E5	10	40	IVVITSPATA	25839
HPV18	E5	11	40	IVVITSPATAF	25840
HPV18	E5	9	4	LIFLFCFCV	25841
HPV18	E5	11	4	LIFLFCFCVCM	25842
HPV18	E5	8	63	LLHHAIL	25843
HPV18	E5	10	63	LLHHAILSL	25844
HPV18	E5	8	62	LLHHIAI	25845
HPV18	E5	9	62	LLHHIAI	25846
HPV18	E5	11	62	LLHHIAI	25847
HPV18	E5	9	58	LLPMLLLHI	25848
HPV18	E5	11	58	LLPMLLLHI	25849
HPV18	E5	9	22	LLPSVCMCA	25850

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E5	10	22	LLPSVCMCA Y	25851
HPV18	E5	11	22	LLPSVCMCAY A	25852
HPV18	E5	8	59	LPMLLLHI	25853
HPV18	E5	10	59	LPMLLLHIHA	25854
HPV18	E5	11	59	LPMLLLHIHAI	25855
HPV18	E5	8	23	LPSVCMCA	25856
HPV18	E5	9	23	LPSVCMCA Y	25857
HPV18	E5	10	23	LPSVCMCA Y A	25858
HPV18	E5	11	23	LPSVCMCA YAW	25859
HPV18	E5	8	35	LVFVYIVV	25860
HPV18	E5	9	35	LVFVYIVVI	25861
HPV18	E5	8	61	MLLLHIHA	25862
HPV18	E5	9	61	MLLLHIHAI	25863
HPV18	E5	10	61	MLLLHIHAIL	25864
HPV18	E5	8	1	MLSILFL	25865
HPV18	E5	10	1	MLSILFLFCF	25866
HPV18	E5	8	21	PLLPSVCM	25867
HPV18	E5	10	21	PLLPSVCMCA	25868
HPV18	E5	11	21	PLLPSVCMCA Y	25869
HPV18	E5	9	60	PMLLLHIHA	25870
HPV18	E5	10	60	PMLLLHIHAI	25871
HPV18	E5	11	60	PMLLLHIHAIL	25872
HPV18	E5	8	3	SLILFLCF	25873
HPV18	E5	10	3	SLILFLFCFV	25874
HPV18	E5	8	45	SPATAFTV	25875
HPV18	E5	9	45	SPATAFTVY	25876
HPV18	E5	10	45	SPATAFTVYV	25877
HPV18	E5	11	45	SPATAFTVYVF	25878
HPV18	E5	8	25	SVCMCAY A	25879
HPV18	E5	9	25	SVCMCAYAW	25880
HPV18	E5	10	25	SVCMCAYAWV	25881
HPV18	E5	11	25	SVCMCAYAWVL	25882
HPV18	E5	8	51	TVYVFCFL	25883
HPV18	E5	9	51	TVYVFCFLI	25884
HPV18	E5	11	51	TVYVFCFLPM	25885
HPV18	E5	8	42	VITSPATA	25886
HPV18	E5	9	42	VITSPATAF	25887
HPV18	E5	11	42	VITSPATAFTV	25888
HPV18	E5	8	34	VLVYVYIV	25889
HPV18	E5	9	34	VLVYVYIVV	25890
HPV18	E5	10	34	VLVYVYIVVI	25891
HPV18	E5	9	20	VPLPSVCM	25892
HPV18	E5	11	20	VPLPSVCMCA	25893
HPV18	E5	9	41	VVITSPATA	25894
HPV18	E5	10	41	VVITSPATAF	25895
HPV18	E5	8	33	WVLVYVYI	25896

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E5	9	33	WVLVIFYIV	25897
HPV18	E5	10	33	WVLVIFYIVV	25898
HPV18	E5	11	33	WVLVIFYIVVI	25899
HPV18	E5	9	39	YIVVITSPA	25900
HPV18	E5	11	39	YIVVITSPATA	25901
HPV18	E5	8	15	YVCHVPL	25902
HPV18	E5	9	15	YVCHVPLPL	25903
HPV18	E5	9	53	YVFCFLPLM	25904
HPV18	E5	10	53	YVFCFLPLML	25905
HPV18	E5	11	53	YVFCFLPLMLL	25906
HPV18	E6	8	68	CIDFYRI	25907
HPV18	E6	11	68	CIDFYRIREL	25908
HPV18	E6	8	105	CLRCQKPL	25909
HPV18	E6	11	105	CLRCQKPLNPA	25910
HPV18	E6	8	108	CQKPLNPA	25911
HPV18	E6	11	108	CQKPLNPAEKL	25912
HPV18	E6	8	32	CVYCKTVL	25913
HPV18	E6	10	32	CVYCKTVLEL	25914
HPV18	E6	8	27	DIEITCVY	25915
HPV18	E6	10	16	DLCTELNTSL	25916
HPV18	E6	10	51	DLFVVYRDSI	25917
HPV18	E6	9	6	DPTRRPYKL	25918
HPV18	E6	10	29	EITCVYCKTV	25919
HPV18	E6	11	29	EITCVYCKTVL	25920
HPV18	E6	9	20	ELNTSLQDI	25921
HPV18	E6	11	20	ELNTSLQDIEI	25922
HPV18	E6	9	77	ELRHYSDSV	25923
HPV18	E6	10	77	ELRHYSDSVY	25924
HPV18	E6	8	40	ELTEVFEF	25925
HPV18	E6	9	40	ELTEVFEFA	25926
HPV18	E6	10	40	ELTEVFEFAF	25927
HPV18	E6	10	43	EVFEFAFKDL	25928
HPV18	E6	11	43	EVFEFAFKDLF	25929
HPV18	E6	8	53	FVYRDSI	25930
HPV18	E6	11	53	FVYRDSIPHA	25931
HPV18	E6	10	97	GLYNLLIRCL	25932
HPV18	E6	10	136	GQCHSCCNRA	25933
HPV18	E6	8	120	HLNEKRRF	25934
HPV18	E6	11	120	HLNEKRRFHHI	25935
HPV18	E6	10	60	IPHAACHKCI	25936
HPV18	E6	9	13	KLPDLCTEL	25937
HPV18	E6	11	117	KLRHLNEKRRF	25938
HPV18	E6	8	92	KLNTGLY	25939
HPV18	E6	10	92	KLNTGLYNL	25940
HPV18	E6	11	92	KLNTGLYNLL	25941
HPV18	E6	9	110	KPLNPAEKL	25942

Table XIV
 B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E6	11	102	LIRCLRCQKPL	25943
HPV18	E6	8	14	LPDLCTEL	25944
HPV18	E6	9	25	LQDIEITCV	25945
HPV18	E6	10	25	LQDIEITCV	25946
HPV18	E6	9	150	LQRRRETQV	25947
HPV18	E6	9	113	NPAEKLRLH	25948
HPV18	E6	8	111	PLNPAEKL	25949
HPV18	E6	11	111	PLNPAEKLRLH	25950
HPV18	E6	8	74	RIRELRHY	25951
HPV18	E6	8	149	RLQRRRETQV	25952
HPV18	E6	10	10	RPYKLPDL	25953
HPV18	E6	11	59	SPIIAACHKCI	25954
HPV18	E6	10	24	SLQDIEITCV	25955
HPV18	E6	11	24	SLQDIEITCV	25956
HPV18	E6	10	84	SVYGDITLEKL	25957
HPV18	E6	10	89	TLEKLTNTGL	25958
HPV18	E6	11	89	TLEKLTNTGLY	25959
HPV18	E6	8	37	TVLELTV	25960
HPV18	E6	9	37	TVLELTVF	25961
HPV18	E6	11	37	TVLELTVFEF	25962
HPV18	E6	8	38	VLELTVF	25963
HPV18	E6	10	38	VLELTVFEF	25964
HPV18	E6	11	38	VLELTVFEFA	25965
HPV18	E6	10	54	VVYRDSIPHA	25966
HPV18	E6	11	54	VVYRDSIPHAA	25967
HPV18	E7	8	63	CMCKCEA	25968
HPV18	E7	10	63	CMCKCEARI	25969
HPV18	E7	8	24	DLICHEQL	25970
HPV18	E7	8	82	DLRAFQQL	25971
HPV18	E7	9	82	DLRAFQQLF	25972
HPV18	E7	10	82	DLRAFQQLFL	25973
HPV18	E7	10	40	EIDGVNIQHL	25974
HPV18	E7	8	16	EPQNEIPV	25975
HPV18	E7	10	16	EPQNEIPVDL	25976
HPV18	E7	11	16	EPQNEIPVDLL	25977
HPV18	E7	8	55	EPQRHTML	25978
HPV18	E7	10	55	EPQRHTMLCM	25979
HPV18	E7	8	90	FLNTLSFV	25980
HPV18	E7	11	90	FLNTLSFVCPW	25981
HPV18	E7	9	86	FQQLFNTL	25982
HPV18	E7	11	86	FQQLFNTLSF	25983
HPV18	E7	9	3	GPKATLQDI	25984
HPV18	E7	10	3	GPKATLQDIV	25985
HPV18	E7	11	3	GPKATLQDIVL	25986
HPV18	E7	9	43	GVNIQILPA	25987
HPV18	E7	8	14	HLEPQNEI	25988

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	E7	10	14	HLEPQNEIPV	25989
HPV18	E7	9	46	HQHLPARRA	25990
HPV18	E7	11	21	IPVDLLCHEQL	25991
HPV18	E7	11	11	IVLHLEPQNEI	25992
HPV18	E7	8	73	KLVVESSA	25993
HPV18	E7	11	73	KLVVESSADDL	25994
HPV18	E7	8	8	LQDIVLHL	25995
HPV18	E7	10	74	LVVLESSADDL	25996
HPV18	E7	10	61	MLCMCCCKCEA	25997
HPV18	E7	9	17	PQNEIPVDL	25998
HPV18	E7	10	17	PQNEIPVDLL	25999
HPV18	E7	9	56	PQRHTMLCM	26000
HPV18	E7	10	22	PVDLLCHEQL	26001
HPV18	E7	9	88	QLFLNTLSF	26002
HPV18	E7	10	88	QLFLNTLSFV	26003
HPV18	E7	8	87	QQLFLNTL	26004
HPV18	E7	10	87	QQLFLNTLSF	26005
HPV18	E7	11	87	QQLFLNTLSFV	26006
HPV18	E7	10	71	RIKLVVESSA	26007
HPV18	E7	9	7	TLQDIVLHL	26008
HPV18	E7	8	93	TLSFVCPW	26009
HPV18	E7	10	93	TLSFVCPWCA	26010
HPV18	E7	11	60	TMLCMCCCKCEA	26011
HPV18	E7	10	12	VLHLEPQNEI	26012
HPV18	E7	9	75	VVLESSADDL	26013
HPV18	E7	11	75	VVLESSADDLRA	26014
HPV18	L1	11	225	AIGEHWAKGTA	26015
HPV18	L1	8	487	AITCQKDA	26016
HPV18	L1	9	487	AITCQKDA	26017
HPV18	L1	11	487	AITCQKDAAPA	26018
HPV18	L1	10	63	ALWRPSDNTV	26019
HPV18	L1	11	63	ALWRPSDNTVY	26020
HPV18	L1	9	495	APAENKDPY	26021
HPV18	L1	8	223	APAIGEHW	26022
HPV18	L1	9	223	APAIGEHWA	26023
HPV18	L1	11	549	APSATTSSKPA	26024
HPV18	L1	8	377	AQGHNGV	26025
HPV18	L1	10	377	AQGHNGVVCW	26026
HPV18	L1	8	218	CILGCAPA	26027
HPV18	L1	9	218	CILGCAPAI	26028
HPV18	L1	8	310	CLRREQLF	26029
HPV18	L1	9	310	CLRREQLFA	26030
HPV18	L1	8	2	CLYTRVLI	26031
HPV18	L1	9	2	CLYTRVLIL	26032
HPV18	L1	11	2	CLYTRVLILHY	26033
HPV18	L1	10	246	CPPLELKNTV	26034

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	11	246	CPPLELKNTVL	26035
HPV18	L1	8	490	CQKDAAPA	26036
HPV18	L1	10	286	CQSICKYPDY	26037
HPV18	L1	11	286	CQSICKYPDYL	26038
HPV18	L1	11	350	CVYSPSPSGSI	26039
HPV18	L1	9	284	DICQSICKY	26040
HPV18	L1	8	122	DIPKVSAY	26041
HPV18	L1	10	122	DIPKVSAYQY	26042
HPV18	L1	11	520	DLQYPLGRKKF	26043
HPV18	L1	8	512	DLKEKFSL	26044
HPV18	L1	10	512	DLKEKFSLDL	26045
HPV18	L1	8	433	DLQFIFQL	26046
HPV18	L1	11	433	DLQFIFQLCTI	26047
HPV18	L1	9	260	DMVDTGYGA	26048
HPV18	L1	10	260	DMVDTGYGAM	26049
HPV18	L1	8	501	DPYDKLKF	26050
HPV18	L1	9	501	DPYDKLKFW	26051
HPV18	L1	11	501	DPYDKLKFWNV	26052
HPV18	L1	8	301	DPYGDSMF	26053
HPV18	L1	9	301	DPYGDSMFF	26054
HPV18	L1	11	301	DPYGDSMFFCL	26055
HPV18	L1	9	522	DQYPLGRKF	26056
HPV18	L1	10	522	DQYPLGRKFL	26057
HPV18	L1	11	522	DQYPLGRKFLV	26058
HPV18	L1	9	448	DVMSYIHSM	26059
HPV18	L1	8	203	DVRDNVSV	26060
HPV18	L1	10	203	DVRDNVSVDY	26061
HPV18	L1	8	167	EIGRGQPL	26062
HPV18	L1	10	167	EIGRGQPLGV	26063
HPV18	L1	8	314	EQLFARIIF	26064
HPV18	L1	9	314	EQLFARHEW	26065
HPV18	L1	10	280	EVPLDICQSI	26066
HPV18	L1	8	436	FIFQLCTI	26067
HPV18	L1	10	436	FIFQLCTITL	26068
HPV18	L1	8	49	FLRNVNVF	26069
HPV18	L1	10	49	FLRNVNVFPI	26070
HPV18	L1	11	49	FLRNVNVFPIF	26071
HPV18	L1	8	56	FPIFLQMA	26072
HPV18	L1	9	56	FPIFLQMAL	26073
HPV18	L1	10	56	FPIFLQMALW	26074
HPV18	L1	8	438	FQLCTITL	26075
HPV18	L1	10	438	FQLCTITLTA	26076
HPV18	L1	8	145	GLPDTSIY	26077
HPV18	L1	8	535	GLRRKPTI	26078
HPV18	L1	8	177	GLSGHIPFY	26079
HPV18	L1	11	177	GLSGHIPFYNKL	26080

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	10	342	GMPASPGSCV	26081
HPV18	L1	11	342	GMPASPGSCVY	26082
HPV18	L1	9	19	GPLYHPRPL	26083
HPV18	L1	11	19	GPLYHPRPLPL	26084
HPV18	L1	10	543	GPRKRSAPSA	26085
HPV18	L1	8	171	GQPLGVGL	26086
HPV18	L1	8	415	GQYDATKF	26087
HPV18	L1	11	415	GQYDATKFKQY	26088
HPV18	L1	8	383	GVCWHNQL	26089
HPV18	L1	9	383	GVCWHNQLF	26090
HPV18	L1	10	383	GVCWHNQLFV	26091
HPV18	L1	10	165	GVEIGRGQPL	26092
HPV18	L1	9	175	GVGLSGHPF	26093
HPV18	L1	10	175	GVGLSGHPFY	26094
HPV18	L1	10	467	GVPPPTTSL	26095
HPV18	L1	11	467	GVPPPTTSLV	26096
HPV18	L1	8	38	HHICGHY	26097
HPV18	L1	9	38	HHICGHYI	26098
HPV18	L1	10	38	HHICGHYII	26099
HPV18	L1	11	38	HHICGHYIIL	26100
HPV18	L1	9	13	HLLPLYGPL	26101
HPV18	L1	10	13	HLLPLYGPLY	26102
HPV18	L1	10	23	HPRPLPLHSI	26103
HPV18	L1	11	23	HPRPLPLHSIL	26104
HPV18	L1	9	428	HVEEYDLQF	26105
HPV18	L1	10	428	HVEEYDLQFI	26106
HPV18	L1	11	428	HVEEYDLQFIF	26107
HPV18	L1	8	40	IICGHYII	26108
HPV18	L1	9	40	IICGHYIIL	26109
HPV18	L1	10	40	IICGHYIILF	26110
HPV18	L1	11	40	IICGHYIILFL	26111
HPV18	L1	8	39	IICGHYI	26112
HPV18	L1	9	39	IICGHYII	26113
HPV18	L1	10	39	IICGHYIIL	26114
HPV18	L1	11	39	IICGHYIILF	26115
HPV18	L1	8	46	IILFLRN	26116
HPV18	L1	10	46	IILFLRNV	26117
HPV18	L1	11	46	IILFLRNVV	26118
HPV18	L1	9	460	IILFLRNVVF	26119
HPV18	L1	9	47	ILEDWNFGV	26120
HPV18	L1	10	47	IILFLRNVV	26121
HPV18	L1	8	219	IILFLRNVVF	26122
HPV18	L1	9	9	ILGCAPAI	26123
HPV18	L1	10	9	ILHYHLLPL	26124
HPV18	L1	8	32	ILHYHLLPLY	26125
HPV18	L1	9	32	ILVYMVHII	26126

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	10	32	ILVYMVHIII	26127
HPV18	L1	9	123	IPKVSAYQY	26128
HPV18	L1	11	123	IPKVSAYQYRV	26129
HPV18	L1	8	360	IVTSDSQL	26130
HPV18	L1	9	360	IVTSDSQLF	26131
HPV18	L1	10	186	KLDDTESSHA	26132
HPV18	L1	11	186	KLDDTESSHAA	26133
HPV18	L1	9	505	KLKFWNVDL	26134
HPV18	L1	8	557	KPAKRVRV	26135
HPV18	L1	10	557	KPAKRVRVRA	26136
HPV18	L1	11	539	KPTIGPRKRSA	26137
HPV18	L1	8	370	KPYWLHKA	26138
HPV18	L1	9	120	KQDIPKUSA	26139
HPV18	L1	10	120	KQDIPKVSAY	26140
HPV18	L1	8	213	KQTQLCIL	26141
HPV18	L1	11	213	KQTQLCILGCA	26142
HPV18	L1	10	423	KQYSRHVEEY	26143
HPV18	L1	9	125	KVSAYQYRV	26144
HPV18	L1	10	125	KVSAYQYRVF	26145
HPV18	L1	8	8	LILHYHLL	26146
HPV18	L1	10	8	LILHYHLLPL	26147
HPV18	L1	11	8	LILHYHLLPLY	26148
HPV18	L1	8	14	LLPLYGPL	26149
HPV18	L1	9	14	LLPLYGPLY	26150
HPV18	L1	8	103	LLTVGNPY	26151
HPV18	L1	9	103	LLTVGNPYF	26152
HPV18	L1	11	103	LLTVGNPYFRV	26153
HPV18	L1	9	138	LPDPNKFGL	26154
HPV18	L1	8	27	LPLIISILV	26155
HPV18	L1	9	27	LPLIISILVY	26156
HPV18	L1	10	27	LPLHSILVYM	26157
HPV18	L1	11	27	LPLHSILVYMV	26158
HPV18	L1	8	15	LPLYGPLY	26159
HPV18	L1	9	74	LPPPSVARV	26160
HPV18	L1	10	74	LPPPSVARVV	26161
HPV18	L1	8	274	LQDTKCEV	26162
HPV18	L1	10	274	LQDTKCEVPL	26163
HPV18	L1	10	434	LQTFQLCTI	26164
HPV18	L1	8	296	LQMSADPY	26165
HPV18	L1	8	476	LVDITYRFV	26166
HPV18	L1	11	476	LVDITYRFVQSV	26167
HPV18	L1	8	159	LWVACAGV	26168
HPV18	L1	10	159	LWVACAGVEI	26169
HPV18	L1	8	33	LVYMVHII	26170
HPV18	L1	9	33	LVYMVHIII	26171
HPV18	L1	9	343	MPASPGSCV	26172

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	10	343	MPASPGSCVY	26173
HPV18	L1	8	261	MVDITYGA	26174
HPV18	L1	9	261	MVDITYGAM	26175
HPV18	L1	11	261	MVDITYGAMDF	26176
HPV18	L1	10	36	MVHIICGHY	26177
HPV18	L1	11	36	MVHIICGHYI	26178
HPV18	L1	8	153	NPETQRLV	26179
HPV18	L1	9	153	NPETQRLVW	26180
HPV18	L1	10	153	NPETQRLVWA	26181
HPV18	L1	8	108	NPYFRVPA	26182
HPV18	L1	8	388	NQLFVTVV	26183
HPV18	L1	8	510	NVDLKEKF	26184
HPV18	L1	10	510	NVDLKEFSL	26185
HPV18	L1	9	54	NVPIFLQM	26186
HPV18	L1	10	54	NVPIFLQMA	26187
HPV18	L1	11	54	NVPIFLQMAL	26188
HPV18	L1	8	52	NVNVPIF	26189
HPV18	L1	9	52	NVNVPIFL	26190
HPV18	L1	11	52	NVNVPIFLQM	26191
HPV18	L1	10	199	NVSEVDVNDV	26192
HPV18	L1	11	207	NVSDYKQTL	26193
HPV18	L1	8	57	PIFLQMAL	26194
HPV18	L1	9	57	PIFLQMALW	26195
HPV18	L1	8	282	PLDICQSI	26196
HPV18	L1	11	282	PLDICQSICKY	26197
HPV18	L1	8	248	PLELKNTV	26198
HPV18	L1	9	248	PLELKNTVL	26199
HPV18	L1	8	525	PLGRKFLV	26200
HPV18	L1	10	525	PLGRKFLVQA	26201
HPV18	L1	11	173	PLGVGLSGHPF	26202
HPV18	L1	8	28	PLHSILVY	26203
HPV18	L1	9	28	PLHSILVYM	26204
HPV18	L1	10	28	PLHSILVYMV	26205
HPV18	L1	8	26	PLHSILV	26206
HPV18	L1	9	26	PLHSILV	26207
HPV18	L1	10	26	PLHSILVY	26208
HPV18	L1	11	26	PLHSILVYM	26209
HPV18	L1	10	240	PLSQGDCPPL	26210
HPV18	L1	8	20	PLYHPRPL	26211
HPV18	L1	10	20	PLYHPRPLPL	26212
HPV18	L1	9	247	PPLELKNTV	26213
HPV18	L1	10	247	PPLELKNTVL	26214
HPV18	L1	8	469	PPPTTSL	26215
HPV18	L1	9	469	PPPTTSLV	26216
HPV18	L1	8	75	PPPSVARV	26217
HPV18	L1	9	75	PPPSVARVV	26218

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	8	470	PPPTSLV	26219
HPV18	L1	11	470	PPPTSLVDY	26220
HPV18	L1	8	76	PPSVARVV	26221
HPV18	L1	10	471	PPPTSLVDY	26222
HPV18	L1	11	333	PQSLYIKGTGM	26223
HPV18	L1	8	412	PVPGQYDA	26224
HPV18	L1	11	412	PVPGQYDATKF	26225
HPV18	L1	8	216	QLCILGCA	26226
HPV18	L1	10	216	QLCILGCAPA	26227
HPV18	L1	11	216	QLCILGCAPAI	26228
HPV18	L1	9	439	QLCTITLTA	26229
HPV18	L1	11	439	QLCTITLTADV	26230
HPV18	L1	8	315	QLFARHFW	26231
HPV18	L1	11	315	QLFARHFWNRA	26232
HPV18	L1	8	366	QLFNKPYW	26233
HPV18	L1	9	366	QLFNKPYWL	26234
HPV18	L1	8	137	QLPDPNKF	26235
HPV18	L1	10	137	QLPDPNKFGL	26236
HPV18	L1	11	297	QMSADPYGDSM	26237
HPV18	L1	9	102	RLLTVGNPY	26238
HPV18	L1	10	102	RLLTVGNPYF	26239
HPV18	L1	9	158	RLVWACAGV	26240
HPV18	L1	11	158	RLVWACAGVEI	26241
HPV18	L1	8	25	RPLPHSI	26242
HPV18	L1	9	25	RPLPHSIL	26243
HPV18	L1	10	25	RPLPHSILV	26244
HPV18	L1	11	25	RPLPHSILVY	26245
HPV18	L1	11	239	RPLSQGDCPL	26246
HPV18	L1	8	66	RPSDNTVY	26247
HPV18	L1	9	66	RPSDNTVYL	26248
HPV18	L1	9	6	RVLIHYHL	26249
HPV18	L1	10	6	RVLIHYHLL	26250
HPV18	L1	10	135	RVQLDPNKF	26251
HPV18	L1	8	81	RVVNTDDY	26252
HPV18	L1	9	81	RVVNTDDYV	26253
HPV18	L1	8	288	SICKYPDY	26254
HPV18	L1	9	288	SICKYPDYL	26255
HPV18	L1	11	288	SICKYPDYLQM	26256
HPV18	L1	11	93	SIFYHAGSSRL	26257
HPV18	L1	8	459	SILEDWNF	26258
HPV18	L1	10	459	SILEDWNFGV	26259
HPV18	L1	9	31	SILVYMVHI	26260
HPV18	L1	10	31	SILVYMVHII	26261
HPV18	L1	11	31	SILVYMVIIII	26262
HPV18	L1	9	359	SIVTSDSQL	26263
HPV18	L1	10	359	SIVTSDSQLF	26264

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	10	150	SIYNPETQRL	26265
HPV18	L1	11	150	SIYNPETQRLV	26266
HPV18	L1	9	518	SLDLQYPL	26267
HPV18	L1	8	475	SLVDTRYF	26268
HPV18	L1	9	475	SLVDTRYFV	26269
HPV18	L1	9	335	SLYIKGTGM	26270
HPV18	L1	11	335	SLYIKGTGMPA	26271
HPV18	L1	11	306	SMFFCLRREQ	26272
HPV18	L1	10	455	SMNSSILEDW	26273
HPV18	L1	8	353	SPSPSGSI	26274
HPV18	L1	9	353	SPSPSGSIV	26275
HPV18	L1	9	411	SPVPGQYDA	26276
HPV18	L1	8	242	SQGDCPPL	26277
HPV18	L1	10	242	SQGDCPPLLEL	26278
HPV18	L1	8	365	SQLENKPY	26279
HPV18	L1	9	365	SQLENKPYW	26280
HPV18	L1	10	365	SQLENKPYWL	26281
HPV18	L1	10	485	SVAITCQKDA	26282
HPV18	L1	11	485	SVAITCQKDA	26283
HPV18	L1	11	78	SVARVNTDDY	26284
HPV18	L1	9	209	SVDYKQTQL	26285
HPV18	L1	11	209	SVDYKQTQLCI	26286
HPV18	L1	10	404	TICASTQSPV	26287
HPV18	L1	9	541	TIGPRKRS	26288
HPV18	L1	8	442	TITLTADV	26289
HPV18	L1	9	442	TITLTADV	26290
HPV18	L1	11	442	TITLTADVMSY	26291
HPV18	L1	9	273	TLQDTKCEV	26292
HPV18	L1	11	273	TLQDTKCEVPL	26293
HPV18	L1	9	444	TLTADVMSY	26294
HPV18	L1	10	444	TLTADVMSYI	26295
HPV18	L1	10	327	TMGDTVPQSL	26296
HPV18	L1	11	327	TMGDTVPQSLY	26297
HPV18	L1	8	398	TPSTNLTI	26298
HPV18	L1	10	398	TPSTNLITICA	26299
HPV18	L1	9	90	TPTSIFYHA	26300
HPV18	L1	9	215	TQLCILGCA	26301
HPV18	L1	11	215	TQLCILGCAPA	26302
HPV18	L1	9	156	TQRLVWACA	26303
HPV18	L1	11	156	TQRLVWACAGV	26304
HPV18	L1	9	409	TQSPVPGQY	26305
HPV18	L1	11	409	TQSPVPGQYDA	26306
HPV18	L1	9	105	TVGNPYFRV	26307
HPV18	L1	11	105	TVGNPYFRVPA	26308
HPV18	L1	8	254	TVLEDGDM	26309
HPV18	L1	9	254	TVLEDGDMV	26310

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L1	8	331	TVPQSLYI	26311
HPV18	L1	11	393	TVVDTPSTNL	26312
HPV18	L1	9	71	TVYLPSPSV	26313
HPV18	L1	10	71	TVYLPSPSV	26314
HPV18	L1	8	255	VLEDGDMV	26315
HPV18	L1	8	7	VLILHYHL	26316
HPV18	L1	9	7	VLILHYHL	26317
HPV18	L1	11	7	VLILHYHLPL	26318
HPV18	L1	8	449	VMSYIISM	26319
HPV18	L1	11	113	VPAGGKNKQDI	26320
HPV18	L1	10	413	VPQYDATKF	26321
HPV18	L1	9	281	VPLDICQSI	26322
HPV18	L1	9	468	VPPPTTSL	26323
HPV18	L1	10	468	VPPPTTSLV	26324
HPV18	L1	11	532	VQAGLRKKPTI	26325
HPV18	L1	9	136	VQLDPNKF	26326
HPV18	L1	11	136	VQLDPNKFGL	26327
HPV18	L1	10	394	VVDTPSTNL	26328
HPV18	L1	8	82	VVNTDDYV	26329
HPV18	L1	9	452	YIHSMNSSI	26330
HPV18	L1	10	452	YIHSMNSSIL	26331
HPV18	L1	9	45	YIILFLRN	26332
HPV18	L1	11	45	YIILFLRN	26333
HPV18	L1	9	337	YIKGTGMPA	26334
HPV18	L1	8	73	YLPPPSVA	26335
HPV18	L1	10	73	YLPPPSVARV	26336
HPV18	L1	11	73	YLPPPSVARVV	26337
HPV18	L1	9	295	YLQMSADPY	26338
HPV18	L1	11	35	YMHIIICGHY	26339
HPV18	L1	9	292	YMDYLQMSA	26340
HPV18	L1	8	524	YPLGRKFL	26341
HPV18	L1	9	524	YPLGRKFLV	26342
HPV18	L1	11	524	YPLGRKFLVQA	26343
HPV18	L1	8	129	YQYRVFRV	26344
HPV18	L1	10	129	YQYRVFRVQL	26345
HPV18	L1	8	88	YVTPTSIF	26346
HPV18	L1	9	88	YVTPTSIF	26347
HPV18	L1	11	88	YVTPTSIFYHA	26348
HPV18	L2	9	286	ALTSRRGTV	26349
HPV18	L2	11	286	ALTSRRGTVRF	26350
HPV18	L2	8	421	APASTQYI	26351
HPV18	L2	10	421	APASTQYIGI	26352
HPV18	L2	9	327	APSEYIEL	26353
HPV18	L2	9	27	CPDVPVKV	26354
HPV18	L2	9	278	DIIRLIIRPA	26355
HPV18	L2	10	278	DIIRLIIRPAL	26356

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	11	322	DISPIAPSEY	26357
HPV18	L2	10	404	DITLPSITTSV	26358
HPV18	L2	11	404	DITLPSITTSVW	26359
HPV18	L2	9	142	DITPSSTTSV	26360
HPV18	L2	11	142	DITPSSTTSVSI	26361
HPV18	L2	11	129	DITSAGTTTPA	26362
HPV18	L2	10	349	DIYADMDPA	26363
HPV18	L2	11	349	DIYADMDPAV	26364
HPV18	L2	10	346	DLFDIYADDM	26365
HPV18	L2	8	354	DMDPAVPV	26366
HPV18	L2	11	266	DPRSDVPPDSDF	26367
HPV18	L2	8	100	DPSIVTLI	26368
HPV18	L2	9	83	DVGTRPPV	26369
HPV18	L2	10	83	DVGTRPPVV	26370
HPV18	L2	11	83	DVGTRPPVVI	26371
HPV18	L2	8	270	DVPDSDFM	26372
HPV18	L2	10	270	DVPDSDFMDI	26373
HPV18	L2	11	270	DVPDSDFMDII	26374
HPV18	L2	10	396	DVPVYTGPI	26375
HPV18	L2	11	30	DVVPKVEGTTL	26376
HPV18	L2	8	194	EIPLQTEA	26377
HPV18	L2	8	334	ELQPLVSA	26378
HPV18	L2	8	208	EPISSTPL	26379
HPV18	L2	11	208	EPISSTPLFTV	26380
HPV18	L2	9	257	EPVDITLTF	26381
HPV18	L2	10	94	EPVGPTDPSI	26382
HPV18	L2	11	94	EPVGPTDPSIV	26383
HPV18	L2	8	175	EVAGNVFV	26384
HPV18	L2	8	169	EVPTGEV	26385
HPV18	L2	9	169	EVPTGEVA	26386
HPV18	L2	9	443	FIPKKRRV	26387
HPV18	L2	11	443	FIPKKRRVPY	26388
HPV18	L2	8	241	FLTRPSSL	26389
HPV18	L2	9	241	FLTRPSSLI	26390
HPV18	L2	11	241	FLTRPSSLITY	26391
HPV18	L2	11	276	FMDIIRLHRPA	26392
HPV18	L2	9	51	GIFLGGLGI	26393
HPV18	L2	8	429	GIHGTHY	26394
HPV18	L2	9	429	GIHGTHYIL	26395
HPV18	L2	10	429	GIHGTHYVLW	26396
HPV18	L2	8	223	GPRLYSRA	26397
HPV18	L2	9	223	GPRLYSRAY	26398
HPV18	L2	8	97	GPTDPSIV	26399
HPV18	L2	10	97	GPTDPSIVTL	26400
HPV18	L2	11	97	GPTDPSIVTLI	26401
HPV18	L2	8	85	GPTRPPVV	26402

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	9	85	GPTRPPVVI	26403
HPV18	L2	10	167	IIEVPTGEV	26404
HPV18	L2	11	167	IIEVPTGEVA	26405
HPV18	L2	8	279	IIRLHRPA	26406
HPV18	L2	9	279	IIRLHRPAL	26407
HPV18	L2	9	44	ILQWSSLGI	26408
HPV18	L2	10	44	ILQWSSLGIF	26409
HPV18	L2	11	44	ILQWSSLGIFL	26410
HPV18	L2	8	444	IPKKRKR	26411
HPV18	L2	10	444	IPKKRKRVPY	26412
HPV18	L2	11	444	IPKKRKRVPYF	26413
HPV18	L2	10	72	IPLGGRSNTV	26414
HPV18	L2	11	72	IPLGGRSNTV	26415
HPV18	L2	8	416	IVSPTAPA	26416
HPV18	L2	10	103	IVTLIEDSSV	26417
HPV18	L2	11	103	IVTLIEDSSVV	26418
HPV18	L2	8	43	KILQWSSL	26419
HPV18	L2	10	43	KILQWSSLGI	26420
HPV18	L2	11	43	KILQWSSLGIF	26421
HPV18	L2	10	22	KQSGTCPPDV	26422
HPV18	L2	11	22	KQSGTCPPDVV	26423
HPV18	L2	8	34	KVEGTTLA	26424
HPV18	L2	11	34	KVEGTTLADKI	26425
HPV18	L2	8	106	LIEDSSV	26426
HPV18	L2	8	248	LITYDNPA	26427
HPV18	L2	9	248	LITYDNPAF	26428
HPV18	L2	8	407	LPSTTSVW	26429
HPV18	L2	10	407	LPSTTSVWPI	26430
HPV18	L2	11	407	LPSTTSVWPIV	26431
HPV18	L2	8	215	LPTVRRVA	26432
HPV18	L2	8	45	LQWSSLGI	26433
HPV18	L2	9	45	LQWSSLGIF	26434
HPV18	L2	10	45	LQWSSLGIFL	26435
HPV18	L2	10	338	LVSATEDNDL	26436
HPV18	L2	11	338	LVSATEDNDLF	26437
HPV18	L2	11	253	NPAFEPVDITL	26438
HPV18	L2	9	159	NPAFSDPSI	26439
HPV18	L2	10	159	NPAFSDPSII	26440
HPV18	L2	11	238	NPEFLTRPSSL	26441
HPV18	L2	10	386	NVTVPLTSSW	26442
HPV18	L2	8	325	PIAPSPEY	26443
HPV18	L2	9	325	PIAPSPEYI	26444
HPV18	L2	11	325	PIAPSPEYIEL	26445
HPV18	L2	10	209	PISSTPLPTV	26446
HPV18	L2	9	415	PIVSPTAPA	26447
HPV18	L2	9	73	PLGGRSNTV	26448

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	10	73	PLGGRSNTVV	26449
HPV18	L2	8	214	PLPTVRRV	26450
HPV18	L2	9	214	PLPTVRRVA	26451
HPV18	L2	8	390	PLTSSWDV	26452
HPV18	L2	10	390	PLTSSWDVPV	26453
HPV18	L2	11	390	PLTSSWDVPVY	26454
HPV18	L2	11	337	PLVSATEDNDL	26455
HPV18	L2	8	28	PPDVVPKV	26456
HPV18	L2	8	89	PPVVIIEPV	26457
HPV18	L2	10	171	PQTGEVAGNV	26458
HPV18	L2	11	171	PQTGEVAGNVF	26459
HPV18	L2	8	258	PVDTLTF	26460
HPV18	L2	9	95	PVGPTDPSI	26461
HPV18	L2	10	95	PVGPTDPSIV	26462
HPV18	L2	10	360	PVPSRSTTSF	26463
HPV18	L2	11	360	PVPSRSTTSFA	26464
HPV18	L2	8	398	PVYTGPDI	26465
HPV18	L2	10	398	PVYTGPDIIL	26466
HPV18	L2	8	312	QIGARVHF	26467
HPV18	L2	9	312	QIGARVHFY	26468
HPV18	L2	10	232	QQVSVANPEF	26469
HPV18	L2	11	232	QQVSVANPEEL	26470
HPV18	L2	9	233	QVSVANPEF	26471
HPV18	L2	10	233	QVSVANPEFL	26472
HPV18	L2	8	298	RLGQRATM	26473
HPV18	L2	9	298	RLGQRATMF	26474
HPV18	L2	10	225	RLYSRAYQQV	26475
HPV18	L2	11	284	RPALTSTRGTV	26476
HPV18	L2	9	88	RPPVVIIEPV	26477
HPV18	L2	8	244	RPSSLITY	26478
HPV18	L2	10	119	RPTFTGTSGF	26479
HPV18	L2	8	220	RVAGPRLY	26480
HPV18	L2	11	220	RVAGPRLYSRA	26481
HPV18	L2	8	316	RVHFFYHDI	26482
HPV18	L2	11	316	RVHFFYHDISPI	26483
HPV18	L2	10	450	RVPYFFADGF	26484
HPV18	L2	11	450	RVPYFFADGFV	26485
HPV18	L2	11	166	SIIEVPQTGEV	26486
HPV18	L2	11	151	SISTTNFTNPA	26487
HPV18	L2	11	102	SIVTLIEDSSV	26488
HPV18	L2	9	49	SLGIFLGGI	26489
HPV18	L2	11	49	SLGIFLGGIGI	26490
HPV18	L2	9	247	SLITYDNPA	26491
HPV18	L2	10	247	SLITYDNPAF	26492
HPV18	L2	10	329	SPEYIELQPL	26493
HPV18	L2	11	329	SPEYIELQPLV	26494

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	9	324	SPIAPSEY	26495
HPV18	L2	10	324	SPIAPSEYI	26496
HPV18	L2	10	418	SPTAPASTQY	26497
HPV18	L2	11	418	SPTAPASTQYI	26498
HPV18	L2	10	375	SPTISSASSY	26499
HPV18	L2	8	235	SVANPEFL	26500
HPV18	L2	9	149	SVSISTTNF	26501
HPV18	L2	10	412	SVWPIVSPTA	26502
HPV18	L2	8	377	TISSASSY	26503
HPV18	L2	11	377	TISSASSYSNV	26504
HPV18	L2	9	39	TLADKILQW	26505
HPV18	L2	8	105	TLIEDSSV	26506
HPV18	L2	9	105	TLIEDSSVV	26507
HPV18	L2	8	406	TLPSTTSV	26508
HPV18	L2	9	406	TLPSTTSVW	26509
HPV18	L2	11	406	TLPSTTSVWPI	26510
HPV18	L2	10	262	TLTFDPRSDV	26511
HPV18	L2	10	304	TMFTRSGTQI	26512
HPV18	L2	9	213	TPLPTVRRV	26513
HPV18	L2	10	213	TPLPTVRRVA	26514
HPV18	L2	9	144	TPSSTSVSI	26515
HPV18	L2	9	184	TPTSNGTHY	26516
HPV18	L2	9	311	TQIGARVHF	26517
HPV18	L2	10	311	TQIGARVHFY	26518
HPV18	L2	11	425	TQYIGIHGTHY	26519
HPV18	L2	8	388	TVPLTSSW	26520
HPV18	L2	10	388	TVPLTSSWDV	26521
HPV18	L2	11	293	TVRFSLGQRA	26522
HPV18	L2	10	217	TVRRVAGPRL	26523
HPV18	L2	11	217	TVRRVAGPRLY	26524
HPV18	L2	11	140	VLDITPSSTSV	26525
HPV18	L2	9	271	VPDSDFMDI	26526
HPV18	L2	10	271	VPDSDFMDII	26527
HPV18	L2	9	32	VPKVEGTTL	26528
HPV18	L2	10	32	VPKVEGTTLA	26529
HPV18	L2	9	389	VPLTSSWDV	26530
HPV18	L2	11	389	VPLTSSWDVPV	26531
HPV18	L2	8	170	VPQTGEVA	26532
HPV18	L2	11	170	VPQTGEVAGNV	26533
HPV18	L2	9	361	VPSRSTTSF	26534
HPV18	L2	10	361	VPSRSTTSFA	26535
HPV18	L2	11	361	VPSRSTTSFAP	26536
HPV18	L2	11	359	VPVPSRSTTSF	26537
HPV18	L2	9	397	VPVYTGPDII	26538
HPV18	L2	11	397	VPVYTGPDITL	26539
HPV18	L2	9	451	VPYFFADGF	26540

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV18	L2	10	451	VPYFFADGFV	26541
HPV18	L2	11	451	VPYFFADGFVA	26542
HPV18	L2	11	81	VVDVGTRPPV	26543
HPV18	L2	10	31	VVPKVEGTTL	26544
HPV18	L2	11	31	VVPKVEGTTLA	26545
HPV18	L2	11	112	VVTSGAPRPTF	26546
HPV18	L2	8	414	WPIVSPTA	26547
HPV18	L2	10	414	WPIVSPATA	26548
HPV18	L2	8	332	YIELQPLV	26549
HPV18	L2	10	332	YIELQPLVSA	26550
HPV18	L2	9	427	YIGIHGTHY	26551
HPV18	L2	10	427	YIGIHGTHYY	26552
HPV18	L2	11	427	YIGIHGTHYYL	26553
HPV18	L2	11	71	YIPLGGRSNTV	26554
HPV18	L2	8	436	YLWPLYVF	26555
HPV18	L2	9	436	YLWPLYYFI	26556
HPV18	L2	11	231	YQQVSVANPEF	26557
HPV31	E1	11	111	AICIENNSKTA	26558
HPV31	E1	9	519	ALDGNPVS	26559
HPV31	E1	11	519	ALDGNPVSIDV	26560
HPV31	E1	8	68	ALFHAEQA	26561
HPV31	E1	9	439	ALKLFLKGV	26562
HPV31	E1	10	533	ALMQLKCPPL	26563
HPV31	E1	11	533	ALMQLKCPPLI	26564
HPV31	E1	9	298	ALYWYRTGM	26565
HPV31	E1	9	186	AMLGKFEL	26566
HPV31	E1	10	186	AMLGKFELY	26567
HPV31	E1	8	458	APNTGKSY	26568
HPV31	E1	9	458	APNTGKSYF	26569
HPV31	E1	11	458	APNTGKSYFGM	26570
HPV31	E1	10	66	AQALFHAEQA	26571
HPV31	E1	8	72	AQEAEEHA	26572
HPV31	E1	10	72	AQEAEEHAEA	26573
HPV31	E1	11	72	AQEAEEHAEAV	26574
HPV31	E1	10	360	AQLADSDSNA	26575
HPV31	E1	11	22	AVIDROTGDNI	26576
HPV31	E1	9	81	AVQVLKRKY	26577
HPV31	E1	10	81	AVQVLKRKYV	26578
HPV31	E1	9	113	CIENNSKTA	26579
HPV31	E1	8	279	CISTNCML	26580
HPV31	E1	9	279	CISTNCMLI	26581
HPV31	E1	9	239	CLYCHLQSL	26582
HPV31	E1	10	239	CLYCHLQSLA	26583
HPV31	E1	9	284	CMLIQPKL	26584
HPV31	E1	10	539	CPPLITSNI	26585
HPV31	E1	11	217	CVAAFGVGTGTV	26586

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	10	100	CVDYNISPRL	26587
HPV31	E1	10	620	CVSGQNRTL	26588
HPV31	E1	8	96	DISSCVDY	26589
HPV31	E1	10	96	DISSCVDYNI	26590
HPV31	E1	8	421	DIVKFLRY	26591
HPV31	E1	11	421	DIVKFLRYQQI	26592
HPV31	E1	8	336	DLSQMVQW	26593
HPV31	E1	9	336	DLSQMVQWA	26594
HPV31	E1	10	336	DLSQMVQWAY	26595
HPV31	E1	11	46	DMVDFIDNCNV	26596
HPV31	E1	8	528	DVKHKALM	26597
HPV31	E1	10	528	DVKHKALMQL	26598
HPV31	E1	8	348	DVMDDEI	26599
HPV31	E1	9	348	DVMDDEIA	26600
HPV31	E1	10	348	DVMDDEIAY	26601
HPV31	E1	9	311	DVYGETPEW	26602
HPV31	E1	10	311	DVYGETPEWI	26603
HPV31	E1	9	354	EIAYKYAQL	26604
HPV31	E1	10	354	EIAYKYAQLA	26605
HPV31	E1	10	583	ELSDKNWKSF	26606
HPV31	E1	11	583	ELSDKNWKSFF	26607
HPV31	E1	8	193	ELYGVFSM	26608
HPV31	E1	10	193	ELYGVFSMEL	26609
HPV31	E1	11	193	ELYGVFSMELI	26610
HPV31	E1	8	137	EVETQQMV	26611
HPV31	E1	10	137	EVETQQMVQV	26612
HPV31	E1	8	50	FIDNCNV	26613
HPV31	E1	11	443	FLKGVPKKNCI	26614
HPV31	E1	8	372	FLKSNSQA	26615
HPV31	E1	10	372	FLKSNSQAKI	26616
HPV31	E1	11	372	FLKSNSQAKIV	26617
HPV31	E1	9	473	FLOGCIISY	26618
HPV31	E1	10	473	FLOGCIISYA	26619
HPV31	E1	9	425	FLRYQQIEF	26620
HPV31	E1	10	425	FLRYQQIEFV	26621
HPV31	E1	8	436	FLSALKLF	26622
HPV31	E1	9	436	FLSALKLFL	26623
HPV31	E1	8	199	FMELIRPF	26624
HPV31	E1	10	572	FPFDKNGNPV	26625
HPV31	E1	11	572	FPFDKNGNPVY	26626
HPV31	E1	11	206	FQSNKSTCTDW	26627
HPV31	E1	8	433	FVSFLSAL	26628
HPV31	E1	10	433	FVSFLSALKL	26629
HPV31	E1	11	433	FVSFLSALKLF	26630
HPV31	E1	11	499	GMLDDATTTCW	26631
HPV31	E1	8	467	GMSLISFL	26632

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	8	305	GMSNISDV	26633
HPV31	E1	9	305	GMSNISDVY	26634
HPV31	E1	8	252	GMVMLMLV	26635
HPV31	E1	10	252	GMVMLMLVRF	26636
HPV31	E1	11	403	GQWIKSRCDKV	26637
HPV31	E1	8	446	GVPKKNCI	26638
HPV31	E1	9	446	GVPKKNCIL	26639
HPV31	E1	10	446	GVPKKNCIL	26640
HPV31	E1	8	196	GVSFMELI	26641
HPV31	E1	11	196	GVSFMELIRPF	26642
HPV31	E1	10	222	GVGTGVAEGF	26643
HPV31	E1	9	243	HLQSLACSW	26644
HPV31	E1	11	243	HLQSLACSWGM	26645
HPV31	E1	11	478	IISYANSKSHF	26646
HPV31	E1	10	287	IQPPKLRSTA	26647
HPV31	E1	11	287	IQPPKLRSTAA	26648
HPV31	E1	8	381	IVKDCGTM	26649
HPV31	E1	10	422	IVKFLRYQQI	26650
HPV31	E1	8	497	KIGMLDDA	26651
HPV31	E1	9	380	KIVKDCGTM	26652
HPV31	E1	10	276	KLLCISTNCM	26653
HPV31	E1	11	276	KLLCISTNCML	26654
HPV31	E1	9	272	KLEKLLCI	26655
HPV31	E1	8	291	KLRSTAAA	26656
HPV31	E1	9	291	KLRSTAAAL	26657
HPV31	E1	10	291	KLRSTAAALY	26658
HPV31	E1	11	291	KLRSTAAALYW	26659
HPV31	E1	8	412	KVSDGEGDW	26660
HPV31	E1	11	412	KVSDGEGDWRI	26661
HPV31	E1	11	286	LIQPPKLRSTA	26662
HPV31	E1	9	470	LISFLQGGI	26663
HPV31	E1	10	470	LISFLQGGII	26664
HPV31	E1	8	543	LITSNINA	26665
HPV31	E1	9	277	LLCISTNCM	26666
HPV31	E1	10	277	LLCISTNCML	26667
HPV31	E1	11	277	LLCISTNCMLI	26668
HPV31	E1	8	273	LLEKLLCI	26669
HPV31	E1	9	542	LLITSNINA	26670
HPV31	E1	8	234	LLQPYCLY	26671
HPV31	E1	11	234	LLQPYCLYCHL	26672
HPV31	E1	9	256	LMVRFKCA	26673
HPV31	E1	9	534	LMQLKCPPL	26674
HPV31	E1	10	534	LMQLKCPPLI	26675
HPV31	E1	11	534	LMQLKCPPLII	26676
HPV31	E1	11	128	LPDSGYGNTEV	26677
HPV31	E1	8	474	LQGCISY	26678

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	9	474	LOGCIISA	26679
HPV31	E1	10	326	LQHSFNDTTF	26680
HPV31	E1	9	490	LQPLADAKI	26681
HPV31	E1	11	490	LQPLADAKIGM	26682
HPV31	E1	10	235	LQPYCLYCHL	26683
HPV31	E1	8	244	LQSLACSW	26684
HPV31	E1	10	244	LQSLACSWGVM	26685
HPV31	E1	11	244	LQSLACSWGVM	26686
HPV31	E1	11	175	LQVLKTSNGKA	26687
HPV31	E1	11	258	LVRFKCAKNRI	26688
HPV31	E1	10	563	LVVFTEPNPF	26689
HPV31	E1	10	500	MLDDATTPCW	26690
HPV31	E1	8	187	MLGKFEL	26691
HPV31	E1	9	187	MLGKFELY	26692
HPV31	E1	11	187	MLGKFELYGV	26693
HPV31	E1	8	285	MLIQPKL	26694
HPV31	E1	10	255	MLMLVRFKA	26695
HPV31	E1	8	257	MLVRFKA	26696
HPV31	E1	8	535	MLKCPPL	26697
HPV31	E1	9	535	MLKCPPLL	26698
HPV31	E1	10	535	MLKCPPLLI	26699
HPV31	E1	10	47	MVDFIDNCNV	26700
HPV31	E1	11	47	MVDFIDNCNVY	26701
HPV31	E1	9	253	MVMLMLVRF	26702
HPV31	E1	11	143	MVQVEEQITL	26703
HPV31	E1	10	340	MVQWAYDNDV	26704
HPV31	E1	11	340	MVQWAYDNDVM	26705
HPV31	E1	10	547	NINAGKDDRW	26706
HPV31	E1	8	104	NISPRLKA	26707
HPV31	E1	9	104	NISPRLKAI	26708
HPV31	E1	11	104	NISPRLKAICI	26709
HPV31	E1	11	523	NPVSIDVKHKA	26710
HPV31	E1	11	579	NPVYELSDKNW	26711
HPV31	E1	8	59	NQAEAE	26712
HPV31	E1	10	59	NQAEAEQA	26713
HPV31	E1	11	59	NQAEAEQAAL	26714
HPV31	E1	9	55	NVYNNQAEA	26715
HPV31	E1	9	492	PLADAKIGM	26716
HPV31	E1	10	492	PLADAKIGML	26717
HPV31	E1	8	541	PLITSNI	26718
HPV31	E1	10	541	PLITSNINA	26719
HPV31	E1	9	93	PLSDISSCV	26720
HPV31	E1	11	93	PLSDISSVDY	26721
HPV31	E1	8	289	PPKLRSTA	26722
HPV31	E1	9	289	PPKLRSTAA	26723
HPV31	E1	10	289	PPKLRSTAAA	26724

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	11	289	PPKLRSTAAAL	26725
HPV31	E1	9	540	PPLLITSNI	26726
HPV31	E1	11	540	PPLLITSNINA	26727
HPV31	E1	10	524	PVSIDVKHKA	26728
HPV31	E1	11	524	PVSIDVKHKAL	26729
HPV31	E1	10	580	PVYELSDKNW	26730
HPV31	E1	8	430	QIEFVSFL	26731
HPV31	E1	10	430	QIEFVSFLSA	26732
HPV31	E1	11	430	QIEFVSFLSAL	26733
HPV31	E1	9	361	QLADSDSNA	26734
HPV31	E1	11	361	QLADSDSNACA	26735
HPV31	E1	8	536	OLKCPPLL	26736
HPV31	E1	9	536	OLKCPPLLI	26737
HPV31	E1	8	399	QMSMGQWI	26738
HPV31	E1	11	339	QMVQWAYDNDV	26739
HPV31	E1	8	491	QPLADAKI	26740
HPV31	E1	10	491	QPLADAKIGM	26741
HPV31	E1	11	491	QPLADAKIGML	26742
HPV31	E1	9	288	QPPKLRSTA	26743
HPV31	E1	10	288	QPPKLRSTAA	26744
HPV31	E1	11	288	QPPKLRSTAAA	26745
HPV31	E1	9	236	QPYCLYCHL	26746
HPV31	E1	8	429	QQIEFVSF	26747
HPV31	E1	9	429	QQIEFVSFL	26748
HPV31	E1	11	429	QQIEFVSFLSA	26749
HPV31	E1	9	145	QVEQQTTL	26750
HPV31	E1	8	83	QVLKRKYV	26751
HPV31	E1	10	176	QVLKTSNGKA	26752
HPV31	E1	11	176	QVLKTSNGKAA	26753
HPV31	E1	8	267	RITIEKLL	26754
HPV31	E1	11	267	RITIEKLLEKL	26755
HPV31	E1	10	124	RLFELPDSGY	26756
HPV31	E1	11	562	RLVVFTFPNPF	26757
HPV31	E1	8	398	RQMSMGQW	26758
HPV31	E1	9	398	RQMSMGQWI	26759
HPV31	E1	9	322	RQTVLQHSF	26760
HPV31	E1	8	526	SIDVKHKA	26761
HPV31	E1	9	526	SIDVKHKAL	26762
HPV31	E1	10	526	SIDVKHIALM	26763
HPV31	E1	8	246	SLACSWG M	26764
HPV31	E1	9	246	SLACSWG MV	26765
HPV31	E1	10	246	SLACSWG MVM	26766
HPV31	E1	11	246	SLACSWG MVM L	26767
HPV31	E1	10	469	SLISFLQGC I	26768
HPV31	E1	11	469	SLISFLQGC II	26769
HPV31	E1	10	92	SP LSISSCV	26770

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	9	106	SPRLKAICI	26771
HPV31	E1	8	338	SQMVQWAY	26772
HPV31	E1	9	269	TIEKLEKL	26773
HPV31	E1	10	269	TIEKLEKLL	26774
HPV31	E1	8	233	TLLQPYCL	26775
HPV31	E1	9	233	TLLQPYCLY	26776
HPV31	E1	9	387	TMCRRHYKRA	26777
HPV31	E1	10	506	TPCWHYIDNY	26778
HPV31	E1	11	506	TPCWHYIDNYL	26779
HPV31	E1	10	316	TPEWIERQTV	26780
HPV31	E1	11	316	TPEWIERQTVL	26781
HPV31	E1	9	169	TPTRNILQV	26782
HPV31	E1	10	169	TPTRNILQVL	26783
HPV31	E1	9	226	TVAEGFKTL	26784
HPV31	E1	10	226	TVAEGFKTLL	26785
HPV31	E1	10	23	VIDRQTGDN	26786
HPV31	E1	11	84	VLKRYVGSPL	26787
HPV31	E1	9	177	VLKTSNGKA	26788
HPV31	E1	10	177	VLKTSNGKAA	26789
HPV31	E1	11	177	VLKTSNGKAAM	26790
HPV31	E1	11	325	VLQHSFNDTTF	26791
HPV31	E1	8	349	VMDDSEIA	26792
HPV31	E1	9	349	VMDDSEIAY	26793
HPV31	E1	11	349	VMDDSEIAYKY	26794
HPV31	E1	8	254	VMLMLVRF	26795
HPV31	E1	11	254	VMLMLVRFKCA	26796
HPV31	E1	8	447	VPKKNCIL	26797
HPV31	E1	9	447	VPKKNCIL	26798
HPV31	E1	10	144	VQVEEQQTTL	26799
HPV31	E1	8	82	VQVLKRKY	26800
HPV31	E1	9	82	VQVLKRKYV	26801
HPV31	E1	9	341	VQWAYDNDV	26802
HPV31	E1	10	341	VQWAYDNDVM	26803
HPV31	E1	9	564	VVFTFPNPF	26804
HPV31	E1	11	564	VVFTFPNPF	26805
HPV31	E1	8	319	WIERQTVL	26806
HPV31	E1	9	405	WIKSRCDKV	26807
HPV31	E1	8	489	WLQPLADA	26808
HPV31	E1	10	489	WLQPLADAKI	26809
HPV31	E1	8	556	WPYLHSRL	26810
HPV31	E1	9	556	WPYLHSRLV	26811
HPV31	E1	10	556	WPYLHSRLVV	26812
HPV31	E1	11	556	WPYLHSRLVVF	26813
HPV31	E1	9	511	YIDNYLRNA	26814
HPV31	E1	10	511	YIDNYLRNAL	26815
HPV31	E1	8	558	YLIISRLVV	26816

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E1	9	558	YLHSRLVVF	26817
HPV31	E1	11	558	YLHSRLVVF	26818
HPV31	E1	11	515	YLRNALDGNPV	26819
HPV31	E1	9	428	YQIEFVSF	26820
HPV31	E1	10	428	YQIEFVSFL	26821
HPV31	E1	9	89	YVGSPLSDI	26822
HPV31	E2	8	72	AIELQMML	26823
HPV31	E2	11	72	AIELQMML	26824
HPV31	E2	8	338	AIELQMML	26825
HPV31	E2	8	229	ALGTSEGV	26826
HPV31	E2	11	229	ALGTSEGV	26827
HPV31	E2	9	69	ALGTSEGV	26828
HPV31	E2	10	69	ALQAIELQM	26829
HPV31	E2	11	69	ALQAIELQM	26830
HPV31	E2	9	61	ALSVSKAKA	26831
HPV31	E2	10	61	ALSVSKAKA	26832
HPV31	E2	11	105	APTGLKKHGY	26833
HPV31	E2	10	286	AVSCPATTPI	26834
HPV31	E2	11	286	AVSCPATTPI	26835
HPV31	E2	8	140	CIDGQCTV	26836
HPV31	E2	9	140	CIDGQCTV	26837
HPV31	E2	9	109	CLKKHGYTV	26838
HPV31	E2	11	109	CLKKHGYTV	26839
HPV31	E2	9	307	CLRYRLSKY	26840
HPV31	E2	8	289	CPATTPI	26841
HPV31	E2	10	289	CPATTPI	26842
HPV31	E2	9	11	CQDKILEHY	26843
HPV31	E2	10	40	CVLMYKAREM	26844
HPV31	E2	8	124	DVHNTMHY	26845
HPV31	E2	11	124	DVHNTMHY	26846
HPV31	E2	8	204	EISFAGIV	26847
HPV31	E2	11	204	EISFAGIV	26848
HPV31	E2	9	74	ELQMMLETL	26849
HPV31	E2	11	100	ELYLTAPTGL	26850
HPV31	E2	11	48	EMGHSINHQV	26851
HPV31	E2	9	320	EQVSTWHW	26852
HPV31	E2	8	185	EVHAGGQV	26853
HPV31	E2	9	185	EVHAGGQV	26854
HPV31	E2	10	185	EVHAGGQV	26855
HPV31	E2	11	185	EVHAGGQV	26856
HPV31	E2	8	118	EVQFDGDV	26857
HPV31	E2	11	353	FLNTVKIPNTV	26858
HPV31	E2	11	195	FPESVFSSDEI	26859
HPV31	E2	8	168	FVNFTEEA	26860
HPV31	E2	11	168	FVNFTEAKKY	26861
HPV31	E2	9	50	GIHSINIIQV	26862

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	10	50	GIHSINIIQVV	26863
HPV31	E2	9	209	GIVTKLPTA	26864
HPV31	E2	10	156	GIYVHEGHI	26865
HPV31	E2	10	143	GQCTVVEGV	26866
HPV31	E2	10	190	GQVIVPEVS	26867
HPV31	E2	11	190	GQVIVPEVSF	26868
HPV31	E2	8	150	GQVNCCKGI	26869
HPV31	E2	9	150	GQVNCCKGIY	26870
HPV31	E2	10	150	GQVNCCKGIYY	26871
HPV31	E2	11	150	GQVNCCKGIYYV	26872
HPV31	E2	8	29	HIDYWKHI	26873
HPV31	E2	10	29	HIDYWKHRL	26874
HPV31	E2	8	35	HIRLECVL	26875
HPV31	E2	9	35	HIRLECVLM	26876
HPV31	E2	10	35	HIRLECVLMY	26877
HPV31	E2	8	164	HITYFVNF	26878
HPV31	E2	8	297	IILKGDANI	26879
HPV31	E2	9	297	IILKGDANIL	26880
HPV31	E2	11	257	HPNKLRLRGDSV	26881
HPV31	E2	9	56	HQVVPALSV	26882
HPV31	E2	8	295	IHLKGDA	26883
HPV31	E2	10	295	IHLKGDANI	26884
HPV31	E2	11	295	IHLKGDANIL	26885
HPV31	E2	9	304	ILKCLRYRL	26886
HPV31	E2	11	359	IPNTSVSTGY	26887
HPV31	E2	8	193	IVFPESVF	26888
HPV31	E2	8	210	IVTKLPTA	26889
HPV31	E2	8	358	KIPNTVSV	26890
HPV31	E2	8	260	KLLRGDSV	26891
HPV31	E2	11	260	KLLRGDSVDSV	26892
HPV31	E2	11	316	KQLYEQVSSTW	26893
HPV31	E2	10	261	LLRGDSVDSV	26894
HPV31	E2	8	42	LMYKAREM	26895
HPV31	E2	10	42	LMYKAREMGI	26896
HPV31	E2	8	70	LQAIELQM	26897
HPV31	E2	9	70	LQAIELQMM	26898
HPV31	E2	10	70	LQAIELQMML	26899
HPV31	E2	8	75	LQMMLETI	26900
HPV31	E2	10	78	MLETNNTEY	26901
HPV31	E2	11	77	MMLETNNTEY	26902
HPV31	E2	8	94	MQOTSLEL	26903
HPV31	E2	9	94	MQOTSLELY	26904
HPV31	E2	10	94	MQOTSLELYL	26905
HPV31	E2	8	303	NILKCLRY	26906
HPV31	E2	10	303	NILKCLRYRL	26907
HPV31	E2	10	282	NQTRAVSCPA	26908

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	8	9	NVCQDKIL	26909
HPV31	E2	11	9	NVCQDKILEHY	26910
HPV31	E2	9	294	PIHLKGDA	26911
HPV31	E2	11	294	PIHLKGDANI	26912
HPV31	E2	10	317	QLYEQVSSTW	26913
HPV31	E2	8	95	QOTSLELY	26914
HPV31	E2	9	95	QOTSLELYL	26915
HPV31	E2	11	95	QOTSLELYLTA	26916
HPV31	E2	9	191	QVIVFESV	26917
HPV31	E2	10	191	QVIVFESVF	26918
HPV31	E2	8	151	QVNCCKGIY	26919
HPV31	E2	9	151	QVNCCKGIYY	26920
HPV31	E2	10	151	QVNCCKGIYV	26921
HPV31	E2	8	321	QVSSSTWHW	26922
HPV31	E2	8	57	QVVPALSV	26923
HPV31	E2	11	57	QVVPALSVSKA	26924
HPV31	E2	8	25	RLCDHIDY	26925
HPV31	E2	9	25	RLCDHIDYW	26926
HPV31	E2	8	37	RLECVMY	26927
HPV31	E2	10	37	RLECVMYKA	26928
HPV31	E2	9	7	RLNVCQDKI	26929
HPV31	E2	10	7	RLNVCQDKIL	26930
HPV31	E2	8	311	RLSKYKQL	26931
HPV31	E2	9	311	RLSKYKQLY	26932
HPV31	E2	9	53	SINHQQVPA	26933
HPV31	E2	10	53	SINHQQVVPAL	26934
HPV31	E2	8	98	SLELYLTA	26935
HPV31	E2	10	348	SQRDDFLNTV	26936
HPV31	E2	11	5	SQRNLNVCQDKI	26937
HPV31	E2	9	266	SVDSVNCGV	26938
HPV31	E2	10	266	SVDSVNCGVI	26939
HPV31	E2	8	198	SVFSSDEI	26940
HPV31	E2	10	198	SVFSSDEISF	26941
HPV31	E2	11	198	SVFSSDEISFA	26942
HPV31	E2	9	269	SVNCGVISA	26943
HPV31	E2	10	269	SVNCGVISAA	26944
HPV31	E2	11	269	SVNCGVISAAA	26945
HPV31	E2	8	63	SVSKAKAL	26946
HPV31	E2	10	63	SVSKAKALQA	26947
HPV31	E2	11	63	SVSKAKALQAI	26948
HPV31	E2	9	364	SVSTGYMTI	26949
HPV31	E2	8	3	TLSQRLNV	26950
HPV31	E2	9	128	TMIHYTNWKF	26951
HPV31	E2	10	128	TMIHYTNWKF	26952
HPV31	E2	11	128	TMIHYTNWKFY	26953
HPV31	E2	9	93	TMQOTSLEL	26954

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E2	10	93	TMQTSLELY	26955
HPV31	E2	11	93	TMQTSLELYL	26956
HPV31	E2	10	293	TPIHLKGDA	26957
HPV31	E2	10	116	TVEVQFDGDV	26958
HPV31	E2	8	356	TVKIPNTV	26959
HPV31	E2	10	356	TVKIPNTVSV	26960
HPV31	E2	8	362	TVSVSTGY	26961
HPV31	E2	9	362	TVSVSTGYM	26962
HPV31	E2	11	362	TVSVSTGYMTI	26963
HPV31	E2	8	192	VIVFPESV	26964
HPV31	E2	9	192	VIVFPESVF	26965
HPV31	E2	9	41	VLMYKAREM	26966
HPV31	E2	11	41	VLMYKAREMGI	26967
HPV31	E2	9	59	VPALSVSKA	26968
HPV31	E2	11	59	VPALSVSKAKA	26969
HPV31	E2	11	119	VQFDGDVHNTM	26970
HPV31	E2	11	147	VVEGQVNCCKGI	26971
HPV31	E2	10	58	VVPALSVSKA	26972
HPV31	E2	10	344	YISTSQRDDF	26973
HPV31	E2	11	344	YISTSQRDDFL	26974
HPV31	E2	10	138	YLCIDGQCTV	26975
HPV31	E2	11	138	YLCIDGQCTVW	26976
HPV31	E2	9	102	YLTAPTGL	26977
HPV31	E2	9	159	YVHEGHITY	26978
HPV31	E2	10	159	YVHEGHITYF	26979
HPV31	E2	11	159	YVHEGHITYFV	26980
HPV31	E5	8	61	CIYVVFY	26981
HPV31	E5	9	61	CIYVVFYI	26982
HPV31	E5	11	61	CIYVVFYIPL	26983
HPV31	E5	8	26	CLVIRPLV	26984
HPV31	E5	9	26	CLVIRPLVL	26985
HPV31	E5	11	26	CLVIRPLVLSV	26986
HPV31	E5	8	20	CVLLFVCL	26987
HPV31	E5	9	20	CVLLFVCLV	26988
HPV31	E5	10	20	CVLLFVCLVI	26989
HPV31	E5	9	3	ELNISTVSI	26990
HPV31	E5	10	3	ELNISTVSIV	26991
HPV31	E5	11	3	ELNISTVSIVL	26992
HPV31	E5	8	66	FIYIPLFV	26993
HPV31	E5	9	66	FIYIPLFVI	26994
HPV31	E5	8	15	FLLCFCVL	26995
HPV31	E5	9	15	FLLCFCVLL	26996
HPV31	E5	10	15	FLLCFCVLLF	26997
HPV31	E5	11	15	FLLCFCVLLFV	26998
HPV31	E5	9	24	FVCLVIRPL	26999
HPV31	E5	10	24	FVCLVIRPLV	27000

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E5	11	24	FCCLVIRPLVL	27001
HPV31	E5	9	72	FVIHTHASF	27002
HPV31	E5	10	72	FVIHTHASF	27003
HPV31	E5	10	48	ILWVIATSP	27004
HPV31	E5	10	69	IPLFVHHTA	27005
HPV31	E5	8	46	IVILWVIA	27006
HPV31	E5	9	11	IVLCFLLCF	27007
HPV31	E5	11	11	IVLCFLLCFCV	27008
HPV31	E5	8	45	LIVILWVI	27009
HPV31	E5	9	45	LIVILWVIA	27010
HPV31	E5	8	16	LLCFCVLL	27011
HPV31	E5	9	16	LLCFCVLLF	27012
HPV31	E5	10	16	LLCFCVLLFV	27013
HPV31	E5	8	22	LLFVCLVI	27014
HPV31	E5	11	22	LLFVCLVIRPL	27015
HPV31	E5	8	44	LLIVILWV	27016
HPV31	E5	9	44	LLIVILWVI	27017
HPV31	E5	10	44	LLIVILWVIA	27018
HPV31	E5	8	43	LLIVILW	27019
HPV31	E5	9	43	LLIVILWV	27020
HPV31	E5	10	43	LLIVILWVI	27021
HPV31	E5	11	43	LLIVILWVIA	27022
HPV31	E5	8	42	LLIVIL	27023
HPV31	E5	9	42	LLIVILW	27024
HPV31	E5	10	42	LLIVILWV	27025
HPV31	E5	11	42	LLIVILWVI	27026
HPV31	E5	8	27	LVIRPLVL	27027
HPV31	E5	10	27	LVIRPLVLSV	27028
HPV31	E5	8	32	LVLSVSVY	27029
HPV31	E5	9	32	LVLSVSVYA	27030
HPV31	E5	11	32	LVLSVSVYATL	27031
HPV31	E5	9	1	MIENISTV	27032
HPV31	E5	11	1	MIENISTVSI	27033
HPV31	E5	8	5	NISTVSV	27034
HPV31	E5	9	5	NISTVSVL	27035
HPV31	E5	11	5	NISTVSVLCF	27036
HPV31	E5	9	70	PLFVHHTA	27037
HPV31	E5	11	70	PLFVHHTASF	27038
HPV31	E5	8	56	PLRCFCIY	27039
HPV31	E5	9	56	PLRCFCIYV	27040
HPV31	E5	10	56	PLRCFCIYVW	27041
HPV31	E5	11	56	PLRCFCIYVVF	27042
HPV31	E5	8	31	PLVLSVSV	27043
HPV31	E5	9	31	PLVLSVSVY	27044
HPV31	E5	10	31	PLVLSVSVYA	27045
HPV31	E5	9	30	RPLVLSVSV	27046

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV31	E5	10	30	RPLVLSVSVY	27047
HPV31	E5	11	30	RPLVLSVSVYA	27048
HPV31	E5	8	10	SIVLCFLL	27049
HPV31	E5	10	10	SIVLCFLLCF	27050
HPV31	E5	8	55	SPLRCFCI	27051
HPV31	E5	9	55	SPLRCFCIY	27052
HPV31	E5	10	55	SPLRCFCIYV	27053
HPV31	E5	11	55	SPLRCFCIYVV	27054
HPV31	E5	8	35	SVSVYATL	27055
HPV31	E5	9	35	SVSVYATLL	27056
HPV31	E5	10	35	SVSVYATLLL	27057
HPV31	E5	11	35	SVSVYATLLLL	27058
HPV31	E5	8	37	SVYATLLL	27059
HPV31	E5	10	37	SVYATLLLL	27060
HPV31	E5	11	37	SVYATLLLLI	27061
HPV31	E5	8	41	SVYATLLLLIV	27062
HPV31	E5	9	41	TLLLLIVI	27063
HPV31	E5	10	41	TLLLLIVIL	27064
HPV31	E5	11	41	TLLLLIVILW	27065
HPV31	E5	8	8	TLLLLIVILWV	27066
HPV31	E5	9	8	TVSIVLCF	27067
HPV31	E5	10	8	TVSIVLCFL	27068
HPV31	E5	10	51	TVSIVLCFLL	27069
HPV31	E5	8	73	VIATSPRCF	27070
HPV31	E5	9	73	VIHTHASF	27071
HPV31	E5	11	47	VIHTHASF	27072
HPV31	E5	9	28	VILWVIATSP	27073
HPV31	E5	11	28	VIRPLVLSV	27074
HPV31	E5	8	12	VIRPLVLSVSV	27075
HPV31	E5	10	12	VLCFLCF	27076
HPV31	E5	11	12	VLCFLCFCV	27077
HPV31	E5	8	21	VLCFLCFCVL	27078
HPV31	E5	9	21	VLLFVCLV	27079
HPV31	E5	8	21	VLLFVCLVI	27080
HPV31	E5	10	33	VLSVSVYA	27081
HPV31	E5	11	33	VLSVSVYATL	27082
HPV31	E5	8	64	VLSVSVYATLL	27083
HPV31	E5	9	64	VVFIYIPL	27084
HPV31	E5	10	64	VVFIYIPLF	27085
HPV31	E5	11	64	VVFIYIPLFV	27086
HPV31	E5	8	50	VVFIYIPLFVI	27087
HPV31	E5	11	50	WVIATSP	27088
HPV31	E5	11	50	WVIATSPRCF	27089
HPV31	E5	9	63	YIPLFVHTHIA	27090
HPV31	E5	10	63	YVVFYIPL	27091
HPV31	E5	10	63	YVVFYIPLF	27092

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E5	11	63	YVVFYIPLFV	27093
HPV31	E6	9	18	ALEIPYDEL	27094
HPV31	E6	11	18	ALEIPYDELRL	27095
HPV31	E6	8	103	CITCQRPL	27096
HPV31	E6	8	66	CLRFYSKV	27097
HPV31	E6	11	66	CLRFYSKVSEF	27098
HPV31	E6	9	111	CPEEKQRHL	27099
HPV31	E6	8	30	CVYCKGQL	27100
HPV31	E6	9	20	EIPYDELRL	27101
HPV31	E6	8	25	ELRLNCVY	27102
HPV31	E6	8	14	ELSSALEI	27103
HPV31	E6	10	14	ELSSALEIPY	27104
HPV31	E6	10	41	EVLDFAFTDL	27105
HPV31	E6	10	95	GICDLLIRCI	27106
HPV31	E6	8	35	GQLTETEV	27107
HPV31	E6	9	35	GQLTETEV	27108
HPV31	E6	11	35	GQLTETEVLD	27109
HPV31	E6	9	61	GVCTKCLRF	27110
HPV31	E6	10	61	GVCTKCLRFY	27111
HPV31	E6	8	118	HLDKKKRF	27112
HPV31	E6	11	118	HLDKKKRFHNI	27113
HPV31	E6	8	21	IPYDELRL	27114
HPV31	E6	11	21	IPYDELRLNCV	27115
HPV31	E6	11	52	IVYRDDTPHGV	27116
HPV31	E6	8	11	KLIELSSA	27117
HPV31	E6	9	11	KLIELSSAL	27118
HPV31	E6	11	11	KLIELSSALEI	27119
HPV31	E6	10	90	KLTNKGICDL	27120
HPV31	E6	11	90	KLTNKGICDLL	27121
HPV31	E6	11	115	KQRHLDKKRF	27122
HPV31	E6	8	72	KVSEFRWY	27123
HPV31	E6	10	72	KVSEFRWYRY	27124
HPV31	E6	11	100	LIRCTCQRPL	27125
HPV31	E6	11	127	NIGGRWTGRCI	27126
HPV31	E6	9	4	NPAERPKL	27127
HPV31	E6	11	109	PLCPEEKQRHL	27128
HPV31	E6	8	36	QLTETEV	27129
HPV31	E6	10	36	QLTETEVLD	27130
HPV31	E6	11	36	QLTETEVLDFA	27131
HPV31	E6	11	27	RLNCVYCKGQL	27132
HPV31	E6	8	8	RPRKLHEL	27133
HPV31	E6	11	8	RPRKLIELSSA	27134
HPV31	E6	8	142	RPRTETQV	27135
HPV31	E6	10	82	SVYGTITLEKL	27136
HPV31	E6	10	87	TLEKLTNKG	27137
HPV31	E6	10	58	TPHIGVCTKCL	27138

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Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E6	9	42	VLDFATDL	27139
HPV31	E6	11	42	VLDFATDLTI	27140
HPV31	E7	8	91	CPNCSTRL	27141
HPV31	E7	9	59	CQCKSTLRL	27142
HPV31	E7	11	59	CQCKSTLRLCV	27143
HPV31	E7	9	68	CVQSTQVDI	27144
HPV31	E7	11	68	CVQSTQVDIRI	27145
HPV31	E7	8	75	DIRILQEL	27146
HPV31	E7	9	75	DIRILQELL	27147
HPV31	E7	10	75	DIRILQELLM	27148
HPV31	E7	8	21	DLHCYEQL	27149
HPV31	E7	9	14	DLQPEATDL	27150
HPV31	E7	10	36	DVIDSPAGQA	27151
HPV31	E7	9	81	ELLMGSFGI	27152
HPV31	E7	10	81	ELLMGSFGIV	27153
HPV31	E7	9	46	EPDTSNYNI	27154
HPV31	E7	10	46	EPDTSNYNIV	27155
HPV31	E7	11	88	GIVCPNCSTRL	27156
HPV31	E7	10	43	GQAEPDTSNY	27157
HPV31	E7	10	78	ILQELLMGSG	27158
HPV31	E7	10	89	IVCPNCSTRL	27159
HPV31	E7	8	82	LLMGSGFI	27160
HPV31	E7	9	82	LLMGSGFIV	27161
HPV31	E7	8	83	LMGSFGIV	27162
HPV31	E7	10	28	LPDSSDEEDV	27163
HPV31	E7	11	28	LPDSSDEEDVI	27164
HPV31	E7	8	8	LQDYVLDL	27165
HPV31	E7	9	79	LQELLMGSF	27166
HPV31	E7	11	79	LQELLMGSFGI	27167
HPV31	E7	8	15	LQPEATDL	27168
HPV31	E7	11	15	LQPEATDLHCY	27169
HPV31	E7	11	27	QLPDSSDEEDV	27170
HPV31	E7	10	16	QPEATDLHCY	27171
HPV31	E7	10	73	QVDIRILQEL	27172
HPV31	E7	11	73	QVDIRILQELL	27173
HPV31	E7	8	77	RILQELLM	27174
HPV31	E7	11	77	RILQELLMGSF	27175
HPV31	E7	9	66	RLCVQSTQV	27176
HPV31	E7	11	66	RLCVQSTQVDI	27177
HPV31	E7	9	7	TLQDYVLDL	27178
HPV31	E7	11	64	TLRLCVQSTQV	27179
HPV31	E7	8	5	TPTLQDYV	27180
HPV31	E7	9	5	TPTLQDYVVL	27181
HPV31	E7	11	5	TPTLQDYVLDL	27182
HPV31	E7	8	72	TQVDIRIL	27183
HPV31	E7	11	72	TQVDIRILQEL	27184

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	E7	9	37	VIDSPAGQA	27185
HPV31	E7	8	12	VLDLQPEA	27186
HPV31	E7	11	12	VLDLQPEATDL	27187
HPV31	E7	8	69	VQSTQVDI	27188
HPV31	E7	10	69	VQSTQVDIRI	27189
HPV31	E7	11	69	VQSTQVDIRIL	27190
HPV31	E7	9	11	YVLDLQPEA	27191
HPV31	L1	9	348	AIANSDTTF	27192
HPV31	L1	8	398	AILEDWNF	27193
HPV31	L1	10	398	AILEDWNFGL	27194
HPV31	L1	8	426	AITCQKTA	27195
HPV31	L1	10	180	AITPGDCPPL	27196
HPV31	L1	9	213	ALQDTKSNV	27197
HPV31	L1	11	213	ALQDTKSNVPL	27198
HPV31	L1	10	433	APQKPKEDPF	27199
HPV31	L1	10	488	APSASTTTPA	27200
HPV31	L1	8	317	AQGHNNGI	27201
HPV31	L1	10	317	AQGHNNGICW	27202
HPV31	L1	8	305	AQIFNKPY	27203
HPV31	L1	9	305	AQIFNKPYW	27204
HPV31	L1	10	305	AQIFNKPYWM	27205
HPV31	L1	11	147	CISMDYKQTQL	27206
HPV31	L1	9	158	CLLGCKPI	27207
HPV31	L1	10	186	CPPELKNSV	27208
HPV31	L1	11	186	CPPELKNSVI	27209
HPV31	L1	9	224	DICNSICKY	27210
HPV31	L1	9	387	DIMTYIHSM	27211
HPV31	L1	11	459	DLDQFPPLGRKF	27212
HPV31	L1	8	372	DLQFFQL	27213
HPV31	L1	11	372	DLQFFQLCKI	27214
HPV31	L1	11	275	DLYIKSGSTA	27215
HPV31	L1	9	200	DMVDTGFGA	27216
HPV31	L1	10	200	DMVDTGFGAM	27217
HPV31	L1	8	440	DPEKDYVF	27218
HPV31	L1	9	440	DPEKDYVFW	27219
HPV31	L1	11	440	DPEKDYVFWEV	27220
HPV31	L1	9	461	DQFPLGRKF	27221
HPV31	L1	10	461	DQFPLGRKFL	27222
HPV31	L1	11	461	DQFPLGRKFL	27223
HPV31	L1	8	241	EPYGDTLF	27224
HPV31	L1	9	241	EPYGDTLFF	27225
HPV31	L1	10	241	EPYGDTLFFY	27226
HPV31	L1	11	241	EPYGDTLFFYL	27227
HPV31	L1	8	254	EQMFVRHF	27228
HPV31	L1	9	254	EQMFVRHFF	27229
HPV31	L1	8	107	EVGRGQPL	27230

Seq. Id. No.

Sequence

Position

No. of
Amino Acids

Protein

Type

HPV31	L1	8	20	KVSTDEY	27277
HPV31	L1	9	20	KVSTDEYV	27278
HPV31	L1	8	159	LLGCKPPI	27279
HPV31	L1	8	470	LLQAGYRA	27280
HPV31	L1	8	42	LLTVGHPY	27281
HPV31	L1	9	42	LLTVGHPYY	27282
HPV31	L1	11	42	LLTVGHPYYSI	27283
HPV31	L1	9	78	LPDPNKFGF	27284
HPV31	L1	9	13	LPPVPVSKV	27285
HPV31	L1	10	13	LPPVPVSKVV	27286
HPV31	L1	11	471	LQAGYRARPKE	27287
HPV31	L1	8	214	LQDTKSNV	27288
HPV31	L1	10	214	LQDTKSNVPL	27289
HPV31	L1	10	373	LQFIFQLCKI	27290
HPV31	L1	8	69	LQYRVFV	27291
HPV31	L1	10	69	LQYRVFVRVL	27292
HPV31	L1	8	99	LVWACVGL	27293
HPV31	L1	10	99	LVWACVGLV	27294
HPV31	L1	11	314	MQRAQGHNNGI	27295
HPV31	L1	10	238	MVAEPYGDTL	27296
HPV31	L1	11	238	MVAEPYGDTLF	27297
HPV31	L1	8	201	MVDTGFGA	27298
HPV31	L1	9	201	MVDTGFGAM	27299
HPV31	L1	11	201	MVDTGFGAMDF	27300
HPV31	L1	8	300	MVTSDAQI	27301
HPV31	L1	9	300	MVTSDAQIF	27302
HPV31	L1	9	32	NIYYHAGSA	27303
HPV31	L1	11	32	NIYYHAGSARL	27304
HPV31	L1	8	451	NLKEKFS	27305
HPV31	L1	10	451	NLKEKFSADL	27306
HPV31	L1	8	342	NMSVCAAI	27307
HPV31	L1	9	342	NMSVCAAIA	27308
HPV31	L1	8	396	NPAILEDW	27309
HPV31	L1	10	396	NPAILEDWNF	27310
HPV31	L1	8	93	NPETQRLV	27311
HPV31	L1	9	93	NPETQRLVW	27312
HPV31	L1	10	93	NPETQRLVWA	27313
HPV31	L1	10	57	NPKKIVVPKV	27314
HPV31	L1	8	328	NQLFVTIV	27315
HPV31	L1	10	220	NVPLDICNSI	27316
HPV31	L1	8	222	PLDICNSI	27317
HPV31	L1	11	222	PLDICNSICKY	27318
HPV31	L1	8	188	PLELKNSV	27319
HPV31	L1	9	188	PLELKNSVI	27320
HPV31	L1	8	464	PLGRKFLL	27321
HPV31	L1	10	464	PLGRKFLLQA	27322

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	11	113	PLGVGSGHPL	27323
HPV31	L1	9	187	PPLELKNSV	27324
HPV31	L1	10	187	PPLELKNSVI	27325
HPV31	L1	10	410	PPSGSLEDY	27326
HPV31	L1	8	14	PPVPVSKV	27327
HPV31	L1	9	14	PPVPVSKVV	27328
HPV31	L1	9	434	PQKPKEDPF	27329
HPV31	L1	8	15	PVPVSKVV	27330
HPV31	L1	11	17	PVSKVVSTDEY	27331
HPV31	L1	8	306	QIFNKPYW	27332
HPV31	L1	9	306	QIFNKPYWM	27333
HPV31	L1	9	378	QLCKITLSA	27334
HPV31	L1	11	378	QLCKITLSADI	27335
HPV31	L1	11	156	QLCLLGCKPPI	27336
HPV31	L1	8	255	QMFVRHFF	27337
HPV31	L1	9	41	RLLTVGHPY	27338
HPV31	L1	10	41	RLLTVGHPYY	27339
HPV31	L1	8	77	RLPDNKF	27340
HPV31	L1	10	77	RLPDNKF	27341
HPV31	L1	9	98	RLVWACVGL	27342
HPV31	L1	11	98	RLVWACVGLEV	27343
HPV31	L1	11	478	RPKFKAGRSA	27344
HPV31	L1	8	5	RPSEATVY	27345
HPV31	L1	9	5	RPSEATVYL	27346
HPV31	L1	10	75	RVRLPDNKF	27347
HPV31	L1	8	228	SICKYDPY	27348
HPV31	L1	9	228	SICKYDPYL	27349
HPV31	L1	11	228	SICKYDPYLM	27350
HPV31	L1	11	51	SIPKSDNPKKI	27351
HPV31	L1	8	414	SLEDYRF	27352
HPV31	L1	9	414	SLEDYRFV	27353
HPV31	L1	8	2	SLWRPSEA	27354
HPV31	L1	10	2	SLWRPSEATV	27355
HPV31	L1	11	2	SLWRPSEATVY	27356
HPV31	L1	9	149	SMDYKQTQL	27357
HPV31	L1	11	149	SMDYKQTQLCL	27358
HPV31	L1	10	394	SMNPAILEDW	27359
HPV31	L1	9	299	SMVTSDAQI	27360
HPV31	L1	10	299	SMVTSDAQIF	27361
HPV31	L1	8	174	SPCSNNAI	27362
HPV31	L1	10	424	SQAITCOKTA	27363
HPV31	L1	8	194	SVIQDQDM	27364
HPV31	L1	9	194	SVIQDQDMV	27365
HPV31	L1	8	271	SVPTDLYI	27366
HPV31	L1	8	286	TLANSTYF	27367
HPV31	L1	11	246	TLFFYLREQM	27368

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L1	9	383	TLRADIMTY	27369
HPV31	L1	10	383	TLRADIMTYI	27370
HPV31	L1	8	182	TPGDCPPL	27371
HPV31	L1	10	182	TPGDCPPLLEL	27372
HPV31	L1	11	409	TPPSGSLEDY	27373
HPV31	L1	11	295	TPSGSMVTSDA	27374
HPV31	L1	9	96	TQRLVWACV	27375
HPV31	L1	11	96	TQRLVWACVGL	27376
HPV31	L1	10	267	TVGESVPTDL	27377
HPV31	L1	11	267	TVGESVPTDLY	27378
HPV31	L1	9	44	TVGHPYYSI	27379
HPV31	L1	11	333	TVVDTTRSTNM	27380
HPV31	L1	9	10	TVYLPVPVP	27381
HPV31	L1	8	195	VIQDGMV	27382
HPV31	L1	9	63	VPKVSGLQY	27383
HPV31	L1	11	63	VPKVSGLQYRV	27384
HPV31	L1	9	221	VPLDICNSI	27385
HPV31	L1	10	334	VVDTRSTNM	27386
HPV31	L1	8	62	VVPKVSGL	27387
HPV31	L1	10	62	VVPKVSGLQY	27388
HPV31	L1	8	21	VVSTDEYV	27389
HPV31	L1	8	391	YIHSMNPA	27390
HPV31	L1	9	391	YIHSMNPAI	27391
HPV31	L1	10	391	YIHSMNPAII	27392
HPV31	L1	9	277	YIKSGSTA	27393
HPV31	L1	11	277	YIKSGSTATL	27394
HPV31	L1	9	235	YLMVAEPY	27395
HPV31	L1	10	12	YLPVPVPVSKV	27396
HPV31	L1	11	12	YLPVPVPVSKVV	27397
HPV31	L1	8	364	YLRHGEF	27398
HPV31	L1	10	364	YLRHGEFIDL	27399
HPV31	L1	8	250	YLRREQMF	27400
HPV31	L1	9	250	YLRREQMFV	27401
HPV31	L1	8	232	YPDYLMV	27402
HPV31	L1	9	232	YPDYLMVA	27403
HPV31	L1	8	445	YVFEVNL	27404
HPV31	L1	8	27	YVTRTNIY	27405
HPV31	L1	9	27	YVTRTNIYV	27406
HPV31	L1	11	27	YVTRTNIYVHA	27407
HPV31	L1	8	143	AILDVTSV	27408
HPV31	L2	9	286	ALTSRRNTV	27409
HPV31	L2	11	286	ALTSRRNTVRY	27410
HPV31	L2	9	271	APDPDFLDI	27411
HPV31	L2	10	271	APDPDFLDII	27412
HPV31	L2	11	271	APDPDFLDIIA	27413
HPV31	L2	8	240	APKQLITY	27414

Seq. Id. No.

Sequence

Position

No. of
Amino Acids

Protein

Type

HPV31	L2	8	414	APTQVEPF	27415
HPV31	L2	10	414	APTQVEFPPL	27416
HPV31	L2	11	414	APTQVEFPPLA	27417
HPV31	L2	9	424	APTPQVSI	27418
HPV31	L2	10	424	APTPQVSIF	27419
HPV31	L2	11	424	APTPQVSIFV	27420
HPV31	L2	8	376	AVQSTSAV	27421
HPV31	L2	10	376	AVQSTSAVSA	27422
HPV31	L2	11	376	AVQSTSAVSAY	27423
HPV31	L2	9	28	CPSDVIPKI	27424
HPV31	L2	11	133	DIATTADTTA	27425
HPV31	L2	9	278	DIIALHRPA	27426
HPV31	L2	10	278	DIIALHRPAL	27427
HPV31	L2	10	400	DIPIFSGPDV	27428
HPV31	L2	8	322	DISSINPA	27429
HPV31	L2	8	354	DIYADTDF	27430
HPV31	L2	10	354	DIYADTDFTV	27431
HPV31	L2	8	273	DPDFLDII	27432
HPV31	L2	9	273	DPDFLDIIA	27433
HPV31	L2	10	273	DPDFLDIIAL	27434
HPV31	L2	8	102	DPSIVSLV	27435
HPV31	L2	11	160	DPSVLQPPTPA	27436
HPV31	L2	11	234	DPTFLSAPKQL	27437
HPV31	L2	10	96	DPVGPLDPSI	27438
HPV31	L2	11	96	DPVGPLDPSIV	27439
HPV31	L2	9	43	DQILRYGSM	27440
HPV31	L2	11	43	DQILRYGSMGV	27441
HPV31	L2	8	116	DVGAPAPI	27442
HPV31	L2	11	31	DVIPKIEHTTI	27443
HPV31	L2	11	408	DVPIEHAPTQV	27444
HPV31	L2	8	190	EIPMDTFI	27445
HPV31	L2	9	190	EIPMDTFIV	27446
HPV31	L2	9	334	EMQPLGASA	27447
HPV31	L2	10	196	FIVSTNNENI	27448
HPV31	L2	11	276	FLDIIALHRPA	27449
HPV31	L2	8	237	FLSAPKQL	27450
HPV31	L2	9	237	FLSAPKQLI	27451
HPV31	L2	11	237	FLSAPKQLITY	27452
HPV31	L2	10	421	FPLAPTTQV	27453
HPV31	L2	8	433	FVDGGDFY	27454
HPV31	L2	9	433	FVDGGDFYL	27455
HPV31	L2	9	113	GIVDVGAPA	27456
HPV31	L2	11	113	GIVDVGAPAPI	27457
HPV31	L2	11	351	GLYDIYADTDF	27458
HPV31	L2	10	221	GLYSKATQV	27459
HPV31	L2	9	406	GPDVPIEHA	27460

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	8	99	GPLDPSIV	27461
HPV31	L2	10	99	GPLDPSIVSL	27462
HPV31	L2	11	99	GPLDPSIVSLV	27463
HPV31	L2	9	52	GVFFGGLGI	27464
HPV31	L2	8	213	GVRRLPARL	27465
HPV31	L2	10	213	GVRRLPARLGL	27466
HPV31	L2	11	213	GVRRLPARLGLY	27467
HPV31	L2	9	175	HLLSSSI	27468
HPV31	L2	8	125	HPPTTSF	27469
HPV31	L2	10	125	HPPTTSFDFI	27470
HPV31	L2	11	125	HPPTTSFDFIA	27471
HPV31	L2	8	279	IALLHRPA	27472
HPV31	L2	9	279	IALLHRPAL	27473
HPV31	L2	9	45	ILRYGSMGV	27474
HPV31	L2	10	45	ILRYGSMGVF	27475
HPV31	L2	11	45	ILRYGSMGVFF	27476
HPV31	L2	8	211	IPGVRRPA	27477
HPV31	L2	10	211	IPGVRRPARL	27478
HPV31	L2	10	123	IPHPTTSF	27479
HPV31	L2	9	401	IPIFSGPDV	27480
HPV31	L2	11	401	IPIFSGPDVPI	27481
HPV31	L2	9	87	IPRPVSI	27482
HPV31	L2	9	33	IPKIEHTI	27483
HPV31	L2	10	33	IPKIEHTTIA	27484
HPV31	L2	8	191	IPMDTFIV	27485
HPV31	L2	8	114	IVDVVGAPA	27486
HPV31	L2	10	114	IVDVVGAPAPI	27487
HPV31	L2	10	105	IVSLVEESGI	27488
HPV31	L2	11	105	IVSLVEESGIV	27489
HPV31	L2	9	197	IVSTNNENI	27490
HPV31	L2	8	35	KIEHTTIA	27491
HPV31	L2	11	35	KIEHTTIADQI	27492
HPV31	L2	10	242	KQLITYENPA	27493
HPV31	L2	11	242	KQLITYENPAY	27494
HPV31	L2	10	302	KQTLRTRSGA	27495
HPV31	L2	8	231	KVIDPTFL	27496
HPV31	L2	10	231	KVIDPTFLSA	27497
HPV31	L2	8	244	LITYENPA	27498
HPV31	L2	9	244	LITYENPAY	27499
HPV31	L2	8	176	LLLSSSI	27500
HPV31	L2	8	108	LVEESGIV	27501
HPV31	L2	10	108	LVEESGIVDV	27502
HPV31	L2	9	447	MLKRRRRKRV	27503
HPV31	L2	11	447	MLKRRRRKRVSY	27504
HPV31	L2	8	335	MQPLGASA	27505
HPV31	L2	8	269	NIAPDPDF	27506

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	9	269	NIAPDPDFL	27507
HPV31	L2	11	269	NIAPDPDFLDI	27508
HPV31	L2	8	204	NITSSTPI	27509
HPV31	L2	11	204	NITSSTPIPGV	27510
HPV31	L2	9	327	NPAGESIEM	27511
HPV31	L2	9	249	NPAYETVNA	27512
HPV31	L2	9	155	NPTFTDPVS	27513
HPV31	L2	10	155	NPTFTDPSVL	27514
HPV31	L2	8	370	NVSPSTAV	27515
HPV31	L2	9	410	PIEHAPTQV	27516
HPV31	L2	10	410	PIEHAPTQVF	27517
HPV31	L2	8	402	PIFSGPDV	27518
HPV31	L2	10	402	PIFSGPDVPI	27519
HPV31	L2	9	210	PIPGVRRPA	27520
HPV31	L2	11	210	PIPGVRRPARL	27521
HPV31	L2	11	122	PIPHPTTSGF	27522
HPV31	L2	8	88	PIRPPVSI	27523
HPV31	L2	11	88	PIRPPVSI DPV	27524
HPV31	L2	9	422	PLAPTTQV	27525
HPV31	L2	11	422	PLAPTTQVSI	27526
HPV31	L2	9	100	PLDPSIVSL	27527
HPV31	L2	10	100	PLDPSIVSLV	27528
HPV31	L2	8	394	PLSTGFDI	27529
HPV31	L2	10	394	PLSTGFDIPI	27530
HPV31	L2	11	394	PLSTGFDIPIF	27531
HPV31	L2	9	74	PLSTRPSTV	27532
HPV31	L2	11	166	PPTPAETSGHL	27533
HPV31	L2	9	126	PPTSGFDI	27534
HPV31	L2	10	126	PPTSGFDIA	27535
HPV31	L2	8	91	PPVSI DPV	27536
HPV31	L2	11	91	PPVSI DPVGPL	27537
HPV31	L2	9	97	PVGPLDPSI	27538
HPV31	L2	10	97	PVGPLDPSIV	27539
HPV31	L2	10	92	PVSI DPVGPL	27540
HPV31	L2	8	44	QILRYGSM	27541
HPV31	L2	10	44	QILRYGSMGV	27542
HPV31	L2	11	44	QILRYGSMGVF	27543
HPV31	L2	9	243	QLITYENPA	27544
HPV31	L2	10	243	QLITYENPAY	27545
HPV31	L2	8	17	QLYQTCKA	27546
HPV31	L2	9	17	QLYQTCKAA	27547
HPV31	L2	10	228	QQVKVIDPTF	27548
HPV31	L2	11	228	QQVKVIDPTFL	27549
HPV31	L2	8	417	QVFFPPLA	27550
HPV31	L2	9	229	QVKVIDPTF	27551
HPV31	L2	10	229	QVKVIDPTFL	27552

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	11	429	QVSIFVDGGDF	27553
HPV31	L2	8	219	RLGLYSKA	27554
HPV31	L2	8	298	RLGNKQTL	27555
HPV31	L2	11	284	RPALTSRRNTV	27556
HPV31	L2	8	216	RPARLGLY	27557
HPV31	L2	11	216	RPARLGLYSKA	27558
HPV31	L2	9	90	RPPVSIDPV	27559
HPV31	L2	8	78	RPSTVSEA	27560
HPV31	L2	10	78	RPSTVSEASI	27561
HPV31	L2	8	316	RVHYYYDI	27562
HPV31	L2	11	316	RVHYYYDISSI	27563
HPV31	L2	9	454	RVSYFFTDV	27564
HPV31	L2	11	454	RVSYFFTDVSV	27565
HPV31	L2	8	94	SIDPVGPL	27566
HPV31	L2	9	332	SIEMQPLGA	27567
HPV31	L2	11	332	SIEMQPLGASA	27568
HPV31	L2	9	431	SIFVDGGDF	27569
HPV31	L2	10	431	SIFVDGGDFY	27570
HPV31	L2	11	431	SIFVDGGDFYL	27571
HPV31	L2	9	325	SINPAGESI	27572
HPV31	L2	11	325	SINPAGESIEM	27573
HPV31	L2	8	86	SIPIRPPV	27574
HPV31	L2	10	86	SIPIRPPVSI	27575
HPV31	L2	10	182	SISTHNYEEI	27576
HPV31	L2	11	104	SIVSLVEESGI	27577
HPV31	L2	8	107	SLVEESGI	27578
HPV31	L2	9	107	SLVEESGIV	27579
HPV31	L2	11	107	SLVEESGIVDV	27580
HPV31	L2	11	260	SLYFSNTSIINI	27581
HPV31	L2	9	50	SMGVFFGGL	27582
HPV31	L2	11	50	SMGVFFGGLGI	27583
HPV31	L2	11	372	SPSTAVQSTSA	27584
HPV31	L2	9	162	SVLQPTPA	27585
HPV31	L2	10	149	SVSTHENPTF	27586
HPV31	L2	9	40	TIADQILRY	27587
HPV31	L2	8	312	TIGARVHY	27588
HPV31	L2	9	312	TIGARVHYHY	27589
HPV31	L2	10	312	TIGARVHYYY	27590
HPV31	L2	9	347	TLNDGLYDI	27591
HPV31	L2	10	347	TLNDGLYDIY	27592
HPV31	L2	11	347	TLNDGLYDIYA	27593
HPV31	L2	8	304	TLTRSGA	27594
HPV31	L2	10	304	TLTRSGATI	27595
HPV31	L2	9	168	TPAETSGHIL	27596
HPV31	L2	10	168	TPAETSGHILL	27597
HPV31	L2	11	168	TPAETSGHILLL	27598

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV31	L2	10	141	TPAILDVTSV	27599
HPV31	L2	10	209	TPIPGVRRPA	27600
HPV31	L2	8	427	TPQVSIFV	27601
HPV31	L2	9	16	TQLYQTCKA	27602
HPV31	L2	10	16	TQLYQTCKAA	27603
HPV31	L2	11	227	TQQVKVIDPTF	27604
HPV31	L2	8	416	TQVFPFPL	27605
HPV31	L2	9	416	TQVFPFPLA	27606
HPV31	L2	10	362	TVDTPATHNV	27607
HPV31	L2	8	254	TVNAEESL	27608
HPV31	L2	9	254	TVNAEESLY	27609
HPV31	L2	10	254	TVNAEESLYF	27610
HPV31	L2	8	392	TVPLSTGF	27611
HPV31	L2	10	392	TVPLSTGFDI	27612
HPV31	L2	9	81	TVSEASIP	27613
HPV31	L2	9	232	VIDPTFLSA	27614
HPV31	L2	10	32	VIPKIEHTTI	27615
HPV31	L2	11	32	VIPKIEHTTIA	27616
HPV31	L2	8	163	VLQPPTPA	27617
HPV31	L2	10	409	VPIEHAPTQV	27618
HPV31	L2	11	409	VPIEHAPTQVF	27619
HPV31	L2	9	393	VPLSTGFDI	27620
HPV31	L2	11	393	VPLSTGFDIPI	27621
HPV31	L2	10	73	VPLSTRPSTV	27622
HPV31	L2	9	387	VPTNTTVPL	27623
HPV31	L2	9	377	VQSTSAVSA	27624
HPV31	L2	10	377	VQSTSAVSAY	27625
HPV31	L2	11	377	VQSTSAVSAYV	27626
HPV31	L2	8	440	YLHPSYYM	27627
HPV31	L2	9	440	YLHPSYYML	27628
HPV31	L2	10	446	YMLKRRRKRV	27629
HPV31	L2	11	72	YVPLSTRPSTV	27630
HPV31	L2	8	386	YVPTNTTV	27631
HPV31	L2	10	386	YVPTNTTVPL	27632
HPV33	E1	10	596	AINDENWKSF	27633
HPV33	E1	11	596	AINDENWKSFF	27634
HPV33	E1	9	532	ALDGNEISI	27635
HPV33	E1	11	532	ALDGNEISIDV	27636
HPV33	E1	8	84	ALKRKFAA	27637
HPV33	E1	10	546	ALVQLKCPPL	27638
HPV33	E1	11	546	ALVQLKCPPLL	27639
HPV33	E1	8	311	ALYWERTAM	27640
HPV33	E1	9	311	ALYWERTAM	27641
HPV33	E1	8	318	AMSNISDV	27642
HPV33	E1	10	373	AQLADSNNA	27643
HPV33	E1	11	373	AQLADSNNA	27644

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	9	81	AVCALRRKF	27645
HPV33	E1	10	81	AVCALRRKFA	27646
HPV33	E1	11	81	AVCALRRKFAA	27647
HPV33	E1	11	22	AVIERRTGDN	27648
HPV33	E1	11	230	CITGYGISPSV	27649
HPV33	E1	8	259	CLTCDRGI	27650
HPV33	E1	9	259	CLTCDRGII	27651
HPV33	E1	10	259	CLTCDRGIH	27652
HPV33	E1	11	259	CLTCDRGIHL	27653
HPV33	E1	8	465	CMLICGPA	27654
HPV33	E1	9	297	CMVIEPPKL	27655
HPV33	E1	8	494	CVNSKSHF	27656
HPV33	E1	9	494	CVNSKSHFW	27657
HPV33	E1	10	494	CVNSKSHFWL	27658
HPV33	E1	9	367	DIAYYYAQL	27659
HPV33	E1	10	367	DIAYYYAQLA	27660
HPV33	E1	10	46	DLLEFIDDSM	27661
HPV33	E1	8	78	DLNAVCAL	27662
HPV33	E1	8	349	DLSEMVQW	27663
HPV33	E1	9	349	DLSEMVQWA	27664
HPV33	E1	10	349	DLSEMVQWAY	27665
HPV33	E1	8	3	DPEGTNGA	27666
HPV33	E1	10	3	DPEGTNGAGM	27667
HPV33	E1	8	541	DVKHRAIV	27668
HPV33	E1	10	541	DVKHRAIVQL	27669
HPV33	E1	9	324	DVQGTTPW	27670
HPV33	E1	10	324	DVQGTTPEWI	27671
HPV33	E1	9	516	DVTPISWTY	27672
HPV33	E1	10	516	DVTPISWTYI	27673
HPV33	E1	10	537	EISIDVKHRA	27674
HPV33	E1	11	537	EISIDVKHRAI	27675
HPV33	E1	8	361	ELTDDSDI	27676
HPV33	E1	9	361	ELTDDSDIA	27677
HPV33	E1	10	361	ELTDDSDIAY	27678
HPV33	E1	11	361	ELTDDSDIAYY	27679
HPV33	E1	11	352	EMVQWAYDNEL	27680
HPV33	E1	11	301	EPPKLRSTCA	27681
HPV33	E1	8	137	EVETQQM	27682
HPV33	E1	11	137	EVETQQMVM	27683
HPV33	E1	8	169	EVETQMQVQV	27684
HPV33	E1	10	50	FDDSMENSI	27685
HPV33	E1	8	449	FLGAFKKF	27686
HPV33	E1	9	449	FLGAFKKFL	27687
HPV33	E1	10	486	FLKGCVISCV	27688
HPV33	E1	11	456	FLKGIPKKSCM	27689
HPV33	E1	8	385	FLKSNSQA	27690

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	10	385	FLKNSQAKI	27691
HPV33	E1	11	385	FLKNSQAKIV	27692
HPV33	E1	8	212	FMELVRPF	27693
HPV33	E1	10	585	FPFDENGPNV	27694
HPV33	E1	11	585	FPFDENGPNVY	27695
HPV33	E1	8	265	GIHILLJI	27696
HPV33	E1	10	265	GIHILLIRF	27697
HPV33	E1	10	399	GIHILLIRF	27698
HPV33	E1	8	459	GIMCRHYKKA	27699
HPV33	E1	9	459	GIPKKSCM	27700
HPV33	E1	10	459	GIPKKSCML	27701
HPV33	E1	8	209	GISFMELV	27702
HPV33	E1	11	209	GISFMELVRPF	27703
HPV33	E1	10	235	GISPSVAESL	27704
HPV33	E1	8	11	GMGCTGWF	27705
HPV33	E1	10	11	GMGCTGWFEV	27706
HPV33	E1	9	512	GMIDDVTP	27707
HPV33	E1	11	512	GMIDDVTPISW	27708
HPV33	E1	8	480	GMSLQFL	27709
HPV33	E1	9	470	GPANTGKSY	27710
HPV33	E1	10	470	GPANTGKSYF	27711
HPV33	E1	8	163	GVGDDSEV	27712
HPV33	E1	11	256	HLQCLTCDRGI	27713
HPV33	E1	9	266	IHILLIRF	27714
HPV33	E1	8	267	IHILLIRF	27715
HPV33	E1	8	200	ILYKFKEA	27716
HPV33	E1	9	200	ILYKFKEAY	27717
HPV33	E1	11	200	ILYKFKEAYGI	27718
HPV33	E1	9	400	IMCRIHYKKA	27719
HPV33	E1	8	293	IPETCMVI	27720
HPV33	E1	8	460	IPKKSCML	27721
HPV33	E1	9	460	IPKKSCMLI	27722
HPV33	E1	8	59	IQADTEAA	27723
HPV33	E1	10	59	IQADTEAARA	27724
HPV33	E1	11	59	IQADTEAARAL	27725
HPV33	E1	8	72	IQEGEDDL	27726
HPV33	E1	10	72	IQEGEDDLNA	27727
HPV33	E1	11	72	IQEGEDDLNAV	27728
HPV33	E1	8	484	IQFLKGC	27729
HPV33	E1	9	484	IQFLKGCVI	27730
HPV33	E1	8	394	IVKDCGIM	27731
HPV33	E1	10	435	IVOLLRYQNI	27732
HPV33	E1	10	124	KIDELEDSGY	27733
HPV33	E1	8	510	KIGMIDDV	27734
HPV33	E1	11	510	KIGMIDDVTP	27735
HPV33	E1	8	393	KIVKDCGI	27736

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	9	393	KIVKDGIM	27737
HPV33	E1	9	285	KLMSNLLSI	27738
HPV33	E1	8	304	KLRSTCA	27739
HPV33	E1	9	304	KLRSTCAL	27740
HPV33	E1	10	304	KLRSTCALY	27741
HPV33	E1	11	304	KLRSTCALYW	27742
HPV33	E1	8	412	KMSIGQWI	27743
HPV33	E1	9	249	KQHSLYTHL	27744
HPV33	E1	9	245	KVLIKQHSI	27745
HPV33	E1	10	245	KVLIKQHSLY	27746
HPV33	E1	8	247	LIKQHSLY	27747
HPV33	E1	11	247	LIKQHSLYTHL	27748
HPV33	E1	9	483	LIQFLKGCY	27749
HPV33	E1	10	483	LIQFLKGCVI	27750
HPV33	E1	11	271	LIRFRCCKNRL	27751
HPV33	E1	9	47	LLEFIDDSM	27752
HPV33	E1	9	555	LLTSNTNA	27753
HPV33	E1	9	438	LLRYQNI	27754
HPV33	E1	11	438	LLRYQNI	27755
HPV33	E1	9	290	LLSIPETCM	27756
HPV33	E1	10	290	LLSIPETCMV	27757
HPV33	E1	11	290	LLSIPETCMVI	27758
HPV33	E1	8	556	LLTSNTNA	27759
HPV33	E1	8	286	LMSNLLSI	27760
HPV33	E1	10	257	LQCLTCDRGI	27761
HPV33	E1	11	257	LQCLTCDRGII	27762
HPV33	E1	8	184	LQESNVL	27763
HPV33	E1	9	339	LQHSFNDNI	27764
HPV33	E1	10	339	LQHSFNDNIF	27765
HPV33	E1	9	503	LQPLSDAKI	27766
HPV33	E1	11	503	LQPLSDAKIGM	27767
HPV33	E1	9	547	LVQLKCPPL	27768
HPV33	E1	10	547	LVQLKCPPLL	27769
HPV33	E1	11	547	LVQLKCPPLL	27770
HPV33	E1	8	513	MIDDVTP	27771
HPV33	E1	10	513	MIDDVTPISW	27772
HPV33	E1	8	298	MVIEPPKL	27773
HPV33	E1	10	353	MVQWAYDNEL	27774
HPV33	E1	8	443	NIEFTAF	27775
HPV33	E1	10	443	NIEFTAF	27776
HPV33	E1	11	443	NIEFTAF	27777
HPV33	E1	8	346	NIFDLSEM	27778
HPV33	E1	9	346	NIFDLSEM	27779
HPV33	E1	11	346	NIFDLSEM	27780
HPV33	E1	9	199	NILYKFKEA	27781
HPV33	E1	10	199	NILYKFKEAY	27782

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	9	71	NIQEGEDDL	27783
HPV33	E1	11	71	NIQEGEDDLNA	27784
HPV33	E1	10	31	NISEDEETA	27785
HPV33	E1	9	627	NISTFKCSA	27786
HPV33	E1	10	289	NLLSIPETCM	27787
HPV33	E1	11	289	NLLSIPETCMV	27788
HPV33	E1	10	155	NLNDLESSGV	27789
HPV33	E1	11	592	NPVYAINDENW	27790
HPV33	E1	8	175	NVDSCENV	27791
HPV33	E1	10	175	NVDSCENVTL	27792
HPV33	E1	10	189	NVLISSTKA	27793
HPV33	E1	10	181	NVTLQEISNV	27794
HPV33	E1	11	181	NVTLQEISNVL	27795
HPV33	E1	10	519	PISWTYIDDY	27796
HPV33	E1	11	519	PISWTYIDDYM	27797
HPV33	E1	8	434	PIVQLLRY	27798
HPV33	E1	11	434	PIVQLLRYQNI	27799
HPV33	E1	10	554	PLLLTSNTNA	27800
HPV33	E1	9	505	PLSDAKIGM	27801
HPV33	E1	10	505	PLSDAKIGMI	27802
HPV33	E1	10	302	PPKLRSQTCA	27803
HPV33	E1	11	302	PPKLRSQTICAL	27804
HPV33	E1	11	553	PPLLLTSNTNA	27805
HPV33	E1	10	593	PVYAINDENW	27806
HPV33	E1	9	374	QLADSNNA	27807
HPV33	E1	10	374	QLADSNNA	27808
HPV33	E1	11	374	QLADSNNA	27809
HPV33	E1	8	549	QLKCPPLL	27810
HPV33	E1	9	549	QLKCPPLL	27811
HPV33	E1	8	437	QLLRYQNI	27812
HPV33	E1	10	437	QLLRYQNIEF	27813
HPV33	E1	8	504	QPLSDAKI	27814
HPV33	E1	10	504	QPLSDAKIGM	27815
HPV33	E1	11	504	QPLSDAKIGMI	27816
HPV33	E1	11	146	QVESQNGDTNL	27817
HPV33	E1	8	280	RLTVAKLM	27818
HPV33	E1	11	280	RLTVAKLMSNL	27819
HPV33	E1	11	575	RLTVFEKKNPF	27820
HPV33	E1	9	335	RLTVLQHSF	27821
HPV33	E1	9	433	RPVQLLRY	27822
HPV33	E1	8	539	SIDVKHRA	27823
HPV33	E1	9	539	SIDVKHRA	27824
HPV33	E1	10	539	SIDVKHRA	27825
HPV33	E1	10	111	SINKNKECTY	27826
HPV33	E1	8	292	SIPETCMV	27827
HPV33	E1	9	292	SIPETCMVI	27828

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E1	8	58	SIQADTEA	27829
HPV33	E1	9	58	SIQADTEAA	27830
HPV33	E1	11	58	SIQADTEAARA	27831
HPV33	E1	10	482	SLIQFLKGCV	27832
HPV33	E1	11	482	SLIQFLKGCVI	27833
HPV33	E1	11	243	SLKVLIKQHSI	27834
HPV33	E1	9	252	SLYTIILQCL	27835
HPV33	E1	8	54	SMENSIQA	27836
HPV33	E1	8	237	SPSVAESL	27837
HPV33	E1	8	237	SPSVAESLKV	27838
HPV33	E1	10	237	SPSVAESLKV	27839
HPV33	E1	11	390	SQAKIVKDCGI	27840
HPV33	E1	11	390	SQAKIVKDCGI	27841
HPV33	E1	8	149	SQNGDTNL	27842
HPV33	E1	11	149	SQNGDTNLNDL	27843
HPV33	E1	8	93	SQSAEDV	27844
HPV33	E1	9	93	SQSAEDVV	27845
HPV33	E1	8	307	SQTCALYW	27846
HPV33	E1	8	307	SQTCALYWF	27847
HPV33	E1	9	239	SVAESLKV	27848
HPV33	E1	8	239	SVAESLKV	27849
HPV33	E1	9	239	SVAESLKVLI	27850
HPV33	E1	10	239	SVAESLKVLI	27851
HPV33	E1	8	183	TLQEISNV	27852
HPV33	E1	9	183	TLQEISNV	27853
HPV33	E1	8	329	TPIEWIDRL	27854
HPV33	E1	8	329	TPIEWIDRLTV	27855
HPV33	E1	10	329	TPIEWIDRLTV	27856
HPV33	E1	11	329	TPIEWIDRLTV	27857
HPV33	E1	8	518	TPISWTYIDDY	27858
HPV33	E1	11	518	TPISWTYIDDY	27859
HPV33	E1	8	140	TQQMVOVQV	27860
HPV33	E1	8	140	TQQMVOVQV	27861
HPV33	E1	9	282	TVAKLMSNL	27862
HPV33	E1	9	282	TVAKLMSNL	27863
HPV33	E1	10	282	TVAKLMSNLL	27864
HPV33	E1	9	577	TVFEFKNPF	27865
HPV33	E1	9	577	TVFEFKNPF	27866
HPV33	E1	11	577	TVFEFKNPF	27867
HPV33	E1	11	337	TVLQHSFNDNI	27868
HPV33	E1	11	337	TVLQHSFNDNI	27869
HPV33	E1	10	23	VIERRTGDI	27870
HPV33	E1	11	491	VISCVNSKSHF	27871
HPV33	E1	11	491	VISCVNSKSHF	27872
HPV33	E1	9	190	VLHSSNTKA	27873
HPV33	E1	11	190	VLHSSNTKANI	27874
HPV33	E1	8	246	VLIKQHSI	27875
HPV33	E1	8	246	VLIKQHSI	27876
HPV33	E1	9	246	VLIKQHSI	27877
HPV33	E1	10	338	VLQHSFNDNI	27878
HPV33	E1	11	338	VLQHSFNDNI	27879
HPV33	E1	8	325	VQGTTPEWI	27880
HPV33	E1	9	325	VQGTTPEWI	27881
HPV33	E1	8	548	VQLKCPPL	27882
HPV33	E1	8	548	VQLKCPPL	27883
HPV33	E1	9	548	VQLKCPPL	27884

Seq. Id. No.

Sequence

Position

No. of
Amino Acids

Protein

Type

HPV33	E1	10	548	VQLKCPPLLL	27875
HPV33	E1	9	436	VQLRYQNI	27876
HPV33	E1	11	436	VQLRYQNIEF	27877
HPV33	E1	9	354	VQWAYDNEL	27878
HPV33	E1	8	332	WIDRLTVL	27879
HPV33	E1	8	502	WLQPLSDA	27880
HPV33	E1	10	502	WLQPLSDAKI	27881
HPV33	E1	8	569	WPLYHSRL	27882
HPV33	E1	10	569	WPLYHSRLTV	27883
HPV33	E1	11	569	WPLYHSRLTVF	27884
HPV33	E1	9	524	YIDDYMRNA	27885
HPV33	E1	10	524	YIDDYMRNAL	27886
HPV33	E1	8	571	YLHSRLTV	27887
HPV33	E1	9	571	YLHSRLTVF	27888
HPV33	E1	11	571	YLHSRLTVFEF	27889
HPV33	E1	11	528	YMRNALDGNEI	27890
HPV33	E1	8	441	YQNIETFA	27891
HPV33	E1	9	441	YQNIETAF	27892
HPV33	E1	10	441	YQNIETAFI	27893
HPV33	E1	10	249	ALDNRTART	27894
HPV33	E2	10	78	ALETLSKSQY	27895
HPV33	E2	9	41	ALLYTAKQM	27896
HPV33	E2	11	41	ALLYTAKQMGF	27897
HPV33	E2	8	237	AQPLTKLF	27898
HPV33	E2	10	237	AQPLTKLFCA	27899
HPV33	E2	9	10	AVQEKILD	27900
HPV33	E2	10	10	AVQEKILDY	27901
HPV33	E2	9	288	CLRYRLKPY	27902
HPV33	E2	10	195	CPTSISSNQI	27903
HPV33	E2	9	25	DLPSQIEHW	27904
HPV33	E2	11	25	DLPSQIEHWKL	27905
HPV33	E2	10	17	DLYEADKIDL	27906
HPV33	E2	9	247	DPALDNRTA	27907
HPV33	E2	8	3	EISARLNA	27908
HPV33	E2	9	3	EISARLNAV	27909
HPV33	E2	9	74	ELQMALETL	27910
HPV33	E2	10	298	ELYSSMSSTW	27911
HPV33	E2	8	328	EQQQQMFL	27912
HPV33	E2	11	328	EQQQQMFLGTV	27913
HPV33	E2	8	185	EVHVGQV	27914
HPV33	E2	9	185	EVHVGQVQI	27915
HPV33	E2	10	185	EVHVGQVIV	27916
HPV33	E2	11	100	EVWLCEPPKCF	27917
HPV33	E2	11	334	FLGTVKIPPTV	27918
HPV33	E2	8	70	FQVIELQM	27919
HPV33	E2	9	70	FQVIELQMA	27920

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	10	70	FQVIELQMAL	27921
HPV33	E2	9	325	FVTEQQQQM	27922
HPV33	E2	10	325	FVTEQQQQMF	27923
HPV33	E2	11	325	FVTEQQQQMFL	27924
HPV33	E2	8	319	GVTVTVFV	27925
HPV33	E2	11	156	GMYIHNCEKV	27926
HPV33	E2	10	190	GOVIVCPTSI	27927
HPV33	E2	10	53	HLCHQVVPSL	27928
HPV33	E2	11	53	HLCHQVVPSLL	27929
HPV33	E2	9	278	HLKGESNSL	27930
HPV33	E2	8	56	HQVVPSLL	27931
HPV33	E2	9	56	HQVVPSLLA	27932
HPV33	E2	8	187	HVGGQVIV	27933
HPV33	E2	9	139	HEEDTCTM	27934
HPV33	E2	10	139	HEEDTCTMV	27935
HPV33	E2	11	340	IPPTVQISTGF	27936
HPV33	E2	11	276	IVHLKGESNSL	27937
HPV33	E2	8	14	KILDLYEA	27938
HPV33	E2	8	339	KIPPTVQI	27939
HPV33	E2	8	242	KLFCADPA	27940
HPV33	E2	9	242	KLFCADPAL	27941
HPV33	E2	8	34	KLIRMECA	27942
HPV33	E2	9	34	KLIRMECAL	27943
HPV33	E2	10	34	KLIRMECALL	27944
HPV33	E2	11	34	KLIRMECALLY	27945
HPV33	E2	10	294	KPYKELYSSM	27946
HPV33	E2	8	112	KQGETVTV	27947
HPV33	E2	10	112	KQGETVTVQY	27948
HPV33	E2	8	47	KQMGFSHL	27949
HPV33	E2	10	264	KQRTVCSSNV	27950
HPV33	E2	11	264	KQRTVCSSNVA	27951
HPV33	E2	8	151	KVDYIGMY	27952
HPV33	E2	9	151	KVDYIGMYI	27953
HPV33	E2	10	151	KVDYIGMYI	27954
HPV33	E2	11	165	KVYFKYFKEDA	27955
HPV33	E2	8	35	LIRMECAL	27956
HPV33	E2	9	35	LIRMECALL	27957
HPV33	E2	10	35	LIRMECALLY	27958
HPV33	E2	8	62	LLASKTKA	27959
HPV33	E2	9	62	LLASKTKAF	27960
HPV33	E2	11	62	LLASKTKAFQV	27961
HPV33	E2	8	42	LLYTAKQM	27962
HPV33	E2	10	42	LLYTAKQMGF	27963
HPV33	E2	8	26	LPSQIEHW	27964
HPV33	E2	10	26	LPSQIEHWKL	27965
HPV33	E2	11	26	LPSQIEHWKLI	27966

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	8	75	LOMALETL	27967
HPV33	E2	8	94	LQOTSLEV	27968
HPV33	E2	9	94	LQOTSLEVW	27969
HPV33	E2	10	94	LQOTSLEVWL	27970
HPV33	E2	8	147	MVTGKVDY	27971
HPV33	E2	9	147	MVTGKVDYI	27972
HPV33	E2	11	147	MVTGKVDYIGM	27973
HPV33	E2	9	202	NQISTTETA	27974
HPV33	E2	11	202	NQISTTETADI	27975
HPV33	E2	8	272	NVAPIVHL	27976
HPV33	E2	8	239	PLTKLFCA	27977
HPV33	E2	11	239	PLTKLFCADPA	27978
HPV33	E2	10	341	PPTVQISTGF	27979
HPV33	E2	11	341	PPTVQISTGFM	27980
HPV33	E2	11	221	PQAAAKRRRPA	27981
HPV33	E2	8	29	QIEHWKLI	27982
HPV33	E2	10	29	QIEHWKLIRM	27983
HPV33	E2	9	345	QISTGFMTL	27984
HPV33	E2	8	203	QISTTETA	27985
HPV33	E2	10	203	QISTTETADI	27986
HPV33	E2	9	332	QMFLGTVKI	27987
HPV33	E2	11	48	QMGFSLCHQV	27988
HPV33	E2	11	182	QMWVHVGGQV	27989
HPV33	E2	9	238	QPLTKLFCA	27990
HPV33	E2	8	331	QQMFLGTV	27991
HPV33	E2	10	331	QQMFLGTVKI	27992
HPV33	E2	9	330	QQMFLGTV	27993
HPV33	E2	11	330	QQMFLGTVKI	27994
HPV33	E2	10	329	QQQMFLGTV	27995
HPV33	E2	8	95	QOTSLEVW	27996
HPV33	E2	9	95	QOTSLEVWL	27997
HPV33	E2	8	71	QVIELQMA	27998
HPV33	E2	9	71	QVIELQMAL	27999
HPV33	E2	9	191	QVIVCPTSI	28000
HPV33	E2	8	57	QVVPSSLA	28001
HPV33	E2	8	292	RLKPYKEL	28002
HPV33	E2	9	292	RLKPYKELY	28003
HPV33	E2	9	7	RLNAVQEKI	28004
HPV33	E2	10	7	RLNAVQEKIL	28005
HPV33	E2	8	37	RMECALLY	28006
HPV33	E2	10	37	RMECALLYTA	28007
HPV33	E2	9	229	RPADTTDTA	28008
HPV33	E2	9	285	SLKCLRYRL	28009
HPV33	E2	9	61	SLLASKTKA	28010
HPV33	E2	10	61	SLLASKTKAF	28011
HPV33	E2	8	302	SMSSTWHW	28012

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E2	8	28	SQIEHWKL	28013
HPV33	E2	9	28	SQIEHWKLI	28014
HPV33	E2	11	28	SQIEHWKLIRM	28015
HPV33	E2	10	90	SQWTLQQTSL	28016
HPV33	E2	8	85	SOYSTSQW	28017
HPV33	E2	10	85	SQYSTSQWTL	28018
HPV33	E2	9	93	TLQQTSLV	28019
HPV33	E2	10	93	TLQQTSLVW	28020
HPV33	E2	11	93	TLQQTSLVWL	28021
HPV33	E2	10	128	TMDYTNWGEI	28022
HPV33	E2	11	128	TMDYTNWGEIY	28023
HPV33	E2	9	146	TMVTGKVDY	28024
HPV33	E2	10	146	TMVTGKVDYI	28025
HPV33	E2	8	181	TQMWVHV	28026
HPV33	E2	8	267	TVCSSNVA	28027
HPV33	E2	10	267	TVCSSNVAPI	28028
HPV33	E2	11	267	TVCSSNVAPIV	28029
HPV33	E2	8	337	TVKIPPTV	28030
HPV33	E2	10	337	TVKIPPTVQI	28031
HPV33	E2	8	343	TVQISTGF	28032
HPV33	E2	9	343	TVQISTGFM	28033
HPV33	E2	11	343	TVQISTGFMTL	28034
HPV33	E2	8	72	VIELQMAL	28035
HPV33	E2	11	72	VIELQMALET	28036
HPV33	E2	8	192	VIVCPTSI	28037
HPV33	E2	11	59	VPSLLASKTKA	28038
HPV33	E2	8	11	VQEKILD	28039
HPV33	E2	9	11	VQEKILDLY	28040
HPV33	E2	11	11	VQEKILDLYEA	28041
HPV33	E2	8	344	VQISTGFM	28042
HPV33	E2	10	344	VQISTGFMTL	28043
HPV33	E2	11	119	VQYDNDKKNTM	28044
HPV33	E2	9	102	WLCEPPKCF	28045
HPV33	E2	8	159	YIHNCEKV	28046
HPV33	E2	9	159	YIHNCEKVY	28047
HPV33	E2	10	159	YIHNCEKVYF	28048
HPV33	E2	10	138	YIIEEDTCTM	28049
HPV33	E2	11	138	YIIEEDTCTMV	28050
HPV33	E5	9	63	CINFHAQIM	28051
HPV33	E5	9	14	CLSLLRPL	28052
HPV33	E5	10	14	CLSLLRPLI	28053
HPV33	E5	11	14	CLSLLRPLIL	28054
HPV33	E5	9	9	FILFLCLSL	28055
HPV33	E5	10	9	FILFLCLSLI	28056
HPV33	E5	11	9	FILFLCLSLIL	28057
HPV33	E5	8	12	FLCLSLIL	28058

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E5	11	12	FLCLSLRLPL	28059
HPV33	E5	9	56	FLYLPMMCI	28060
HPV33	E5	11	56	FLYLPMMCNF	28061
HPV33	E5	8	3	FVFLCFI	28062
HPV33	E5	9	3	FVFVLCFIL	28063
HPV33	E5	10	3	FVFVLCFILF	28064
HPV33	E5	11	3	FVFVLCFILFL	28065
HPV33	E5	8	42	FVGSPLKI	28066
HPV33	E5	9	42	FVGSPLKIF	28067
HPV33	E5	10	42	FVGSPLKIFF	28068
HPV33	E5	8	5	FVLCFILF	28069
HPV33	E5	9	5	FVLCFILFL	28070
HPV33	E5	11	5	FVLCFILFLCL	28071
HPV33	E5	8	10	ILFLCLSL	28072
HPV33	E5	9	10	ILFLCLSL	28073
HPV33	E5	10	10	ILFLCLSL	28074
HPV33	E5	8	23	ILSISTYA	28075
HPV33	E5	9	23	ILSISTYAW	28076
HPV33	E5	10	23	ILSISTYAWL	28077
HPV33	E5	11	23	ILSISTYAWLL	28078
HPV33	E5	8	48	KIFFCYLL	28079
HPV33	E5	9	48	KIFFCYLLF	28080
HPV33	E5	10	48	KIFFCYLLFL	28081
HPV33	E5	11	48	KIFFCYLLFLY	28082
HPV33	E5	8	22	LILSISTY	28083
HPV33	E5	9	22	LILSISTYA	28084
HPV33	E5	10	22	LILSISTYAW	28085
HPV33	E5	11	22	LILSISTYAWL	28086
HPV33	E5	8	54	LLFLYLPM	28087
HPV33	E5	9	54	LLFLYLPM	28088
HPV33	E5	11	54	LLFLYLPMCI	28089
HPV33	E5	8	17	LLRPLIL	28090
HPV33	E5	10	17	LLRPLILSI	28091
HPV33	E5	11	37	LLWVFGVGSPL	28092
HPV33	E5	9	18	LLRPLILSI	28093
HPV33	E5	8	32	LLVLVLL	28094
HPV33	E5	9	32	LLVLVLLW	28095
HPV33	E5	10	32	LLVLVLLWV	28096
HPV33	E5	11	32	LLVLVLLWVF	28097
HPV33	E5	10	38	LLWVFGVGSPL	28098
HPV33	E5	8	59	LPMMCNF	28099
HPV33	E5	10	59	LPMMCNFHA	28100
HPV33	E5	8	35	LVLLWVF	28101
HPV33	E5	9	35	LVLLWVFV	28102
HPV33	E5	8	33	LVVLVLLW	28103
HPV33	E5	9	33	LVVLVLLWV	28104

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E5	10	33	LVLVLLWVF	28105
HPV33	E5	11	33	LVLVLLWVFV	28106
HPV33	E5	9	1	MIFVFLCF	28107
HPV33	E5	10	1	MIFVFLCFI	28108
HPV33	E5	11	1	MIFVFLCFIL	28109
HPV33	E5	8	61	MMCINFA	28110
HPV33	E5	11	61	MMCINFHAQHM	28111
HPV33	E5	9	21	PLILSISTY	28112
HPV33	E5	10	21	PLILSISTYA	28113
HPV33	E5	11	21	PLILSISTYAW	28114
HPV33	E5	8	46	PLKIFFCY	28115
HPV33	E5	9	46	PLKIFFCYL	28116
HPV33	E5	10	46	PLKIFFCYLL	28117
HPV33	E5	11	46	PLKIFFCYLLF	28118
HPV33	E5	9	60	PMMCINFHA	28119
HPV33	E5	10	20	RPLILSISTY	28120
HPV33	E5	11	20	RPLILSISTYA	28121
HPV33	E5	8	25	SISTYAWL	28122
HPV33	E5	9	25	SISTYAWLL	28123
HPV33	E5	10	25	SISTYAWLLV	28124
HPV33	E5	11	25	SISTYAWLLVL	28125
HPV33	E5	8	16	SLLLRPLI	28126
HPV33	E5	9	16	SLLLRPLIL	28127
HPV33	E5	11	16	SLLLRPLILSI	28128
HPV33	E5	9	45	SPLKIFFCY	28129
HPV33	E5	10	45	SPLKIFFCYL	28130
HPV33	E5	11	45	SPLKIFFCYLL	28131
HPV33	E5	8	6	VLCFILFL	28132
HPV33	E5	10	6	VLCFILFLCL	28133
HPV33	E5	8	36	VLLLWVFV	28134
HPV33	E5	8	34	VLVLLWV	28135
HPV33	E5	9	34	VLVLLWVF	28136
HPV33	E5	10	34	VLVLLWVFV	28137
HPV33	E5	8	31	WLLVLVL	28138
HPV33	E5	9	31	WLLVLVLL	28139
HPV33	E5	10	31	WLLVLVLLW	28140
HPV33	E5	11	31	WLLVLVLLWV	28141
HPV33	E5	8	40	WVFGSPL	28142
HPV33	E5	10	40	WVFGSPLKI	28143
HPV33	E5	11	40	WVFGSPLKIF	28144
HPV33	E5	9	53	YLLFLYLP	28145
HPV33	E5	10	53	YLLFLYLPMM	28146
HPV33	E5	9	58	YLPMMCINF	28147
HPV33	E5	11	58	YLPMMCINFHA	28148
HPV33	E6	9	18	ALETTIHNI	28149
HPV33	E6	11	18	ALETTIHNIEL	28150

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E6	8	103	CIICQRPL	28151
IIPV33	E6	8	66	CLRFLSKI	28152
HPV33	E6	11	66	CLRFLSKISEY	28153
HPV33	E6	9	111	CPQEKKRIV	28154
HPV33	E6	11	111	CPQEKKRIVDL	28155
HPV33	E6	8	16	CQALETTI	28156
HPV33	E6	11	16	CQALETTIHNI	28157
HPV33	E6	8	30	CVECKKPL	28158
HPV33	E6	10	14	DLCOALETTI	28159
HPV33	E6	9	120	DLNKRFHNI	28160
HPV33	E6	8	98	EILIRCI	28161
HPV33	E6	11	27	ELQCVECKKPL	28162
HPV33	E6	8	89	EQTVKKPL	28163
HPV33	E6	11	89	EQTVKKPLNEI	28164
HPV33	E6	8	41	EVYDFAFA	28165
HPV33	E6	10	41	EVYDFAFADL	28166
HPV33	E6	8	69	FLSKISEY	28167
HPV33	E6	11	69	FLSKISEYRHY	28168
HPV33	E6	11	2	FQDTECKPRTL	28169
HPV33	E6	9	61	GICKLCLRF	28170
HPV33	E6	10	61	GICKLCLRFL	28171
HPV33	E6	8	118	HVDLNKRF	28172
HPV33	E6	11	118	HVDLNKRHFHNI	28173
HPV33	E6	8	72	KISEYRHY	28174
HPV33	E6	10	72	KISEYRHYNY	28175
HPV33	E6	10	64	KLCLRFLSKI	28176
IIPV33	E6	8	94	KPLNEILI	28177
IIPV33	E6	11	94	KPLNEILIRCI	28178
HPV33	E6	8	35	KPLQRSEV	28179
HPV33	E6	9	35	KPLQRSEVY	28180
HPV33	E6	11	35	KPLQRSEVYDF	28181
HPV33	E6	8	8	KPRTLHDL	28182
HPV33	E6	11	8	KPRTLHDLCOA	28183
HPV33	E6	11	100	LIRCIICQRPL	28184
HPV33	E6	10	28	LQCVECKKPL	28185
HPV33	E6	9	37	LQRSEVYDF	28186
HPV33	E6	10	37	LQRSEVYDFA	28187
IIPV33	E6	11	37	LQRSEVYDFAF	28188
HPV33	E6	11	127	NISGRWAGRCA	28189
HPV33	E6	8	58	NPFICKL	28190
HPV33	E6	10	58	NPFICKLCL	28191
HPV33	E6	11	109	PLCPQEKKRIV	28192
HPV33	E6	10	95	PLNEILIRCI	28193
HPV33	E6	11	95	PLNEILIRCI	28194
HPV33	E6	8	36	PLQRSEVY	28195
IIPV33	E6	10	36	PLQRSEVYDF	28196

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV33	E6	11	36	PLQRSEVYDFA	28197
HPV33	E6	8	112	POEKRRHV	28198
HPV33	E6	10	112	POEKRRHVDL	28199
HPV33	E6	11	82	SVYGNLTLEQTV	28200
HPV33	E6	10	22	TIHNIELQCV	28201
HPV33	E6	10	87	TLEQTVKKPL	28202
HPV33	E6	8	11	TLHDLCCA	28203
HPV33	E6	9	11	TLHDLCCAL	28204
HPV33	E6	9	91	TVKKPLNEI	28205
HPV33	E6	10	91	TVKKPLNEIL	28206
HPV33	E6	11	91	TVKKPLNEILI	28207
HPV33	E6	10	51	TVVYREGNPF	28208
HPV33	E6	9	52	VVYREGNPF	28209
HPV33	E6	11	52	VVYREGNPFGI	28210
HPV33	E7	8	45	AQPATADY	28211
HPV33	E7	9	45	AQPATADYY	28212
HPV33	E7	10	45	AQPATADYYI	28213
HPV33	E7	11	45	AQPATADYYIV	28214
HPV33	E7	9	68	CVNSTASDL	28215
HPV33	E7	8	75	DLRTIQQL	28216
HPV33	E7	9	75	DLRTIQQLL	28217
HPV33	E7	10	75	DLRTIQQLLM	28218
HPV33	E7	8	21	DLYCYEQL	28219
HPV33	E7	9	14	DLYPEPTDL	28220
HPV33	E7	10	14	DLYPEPTDLY	28221
HPV33	E7	8	18	EPTDLYCY	28222
HPV33	E7	11	18	EPTDLYCYEQL	28223
HPV33	E7	9	37	GLDRPDGQA	28224
HPV33	E7	8	43	GQAQPATA	28225
HPV33	E7	10	43	GQAQPATADY	28226
HPV33	E7	11	43	GQAQPATADYY	28227
HPV33	E7	9	79	IQQLLMGTV	28228
HPV33	E7	11	79	IQQLLMGTVNI	28229
HPV33	E7	8	5	KPTLKEYV	28230
HPV33	E7	9	5	KPTLKEYVL	28231
HPV33	E7	11	5	KPTLKEYVLDL	28232
HPV33	E7	8	82	LLMGTVNI	28233
HPV33	E7	9	82	LLMGTVNIV	28234
HPV33	E7	8	83	LMGTVNIV	28235
HPV33	E7	8	88	NIVCPTCA	28236
HPV33	E7	9	81	QLLMGTVNI	28237
HPV33	E7	10	81	QLLMGTVNIV	28238
HPV33	E7	8	46	QPATADYY	28239
HPV33	E7	9	46	QPATADYYI	28240
HPV33	E7	10	46	QPATADYYIV	28241
HPV33	E7	8	80	QQLLMGTV	28242

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	E7	10	80	QQLLMGTVNI	28243
HPV33	E7	11	80	QQLLMGTVNIV	28244
HPV33	E7	8	66	RLCVNSTA	28245
HPV33	E7	11	66	RLCVNSTASDL	28246
HPV33	E7	9	40	RPDGOAQA	28247
HPV33	E7	11	40	RPDGOAQPATA	28248
HPV33	E7	10	78	TIQQLMGTV	28249
HPV33	E7	9	7	TLKEYVLDL	28250
HPV33	E7	10	7	TLKEYVLDLY	28251
HPV33	E7	10	86	TVNIVCPTCA	28252
HPV33	E7	10	64	TVRLCVNSTA	28253
HPV33	E7	11	12	VLDLYPEPTDL	28254
HPV33	E7	8	16	YPEPTDLY	28255
HPV33	E7	10	16	YPEPTDLYCY	28256
HPV33	E7	8	424	AITCQKTV	28257
HPV33	L1	10	392	AMNPDILEDW	28258
HPV33	L1	9	180	APANDCPPL	28259
HPV33	L1	11	180	APANDCPPEL	28260
HPV33	L1	10	483	APTSTRTSSA	28261
HPV33	L1	8	316	AOGHNNGI	28262
HPV33	L1	10	316	AOGHNNGICW	28263
HPV33	L1	9	44	AVGHPYFSI	28264
HPV33	L1	8	270	AVPDDLYI	28265
HPV33	L1	11	147	CLSMDYKQTQL	28266
HPV33	L1	9	207	CMDFKTLQA	28267
HPV33	L1	10	185	CPPLELINTI	28268
HPV33	L1	11	185	CPPLELINTII	28269
HPV33	L1	9	223	DICGSTCKY	28270
HPV33	L1	8	396	DILEDWQF	28271
HPV33	L1	10	396	DILEDWQFGL	28272
HPV33	L1	11	457	DLDQFPLGRKF	28273
HPV33	L1	8	449	DLKEKFS	28274
HPV33	L1	10	449	DLKEKFSADL	28275
HPV33	L1	8	370	DLQFVFQL	28276
HPV33	L1	11	370	DLQFVFQLCKV	28277
HPV33	L1	11	274	DLYIKSGTGA	28278
HPV33	L1	10	199	DMVDTGFGCM	28279
HPV33	L1	8	438	DPLGKYTF	28280
HPV33	L1	9	438	DPLGKYTFW	28281
HPV33	L1	11	438	DPLGKYTFWEV	28282
HPV33	L1	9	459	DQFPLGRKF	28283
HPV33	L1	10	459	DQFPLGRKFL	28284
HPV33	L1	11	459	DQFPLGRKFL	28285
HPV33	L1	8	107	EIGRGQL	28286
HPV33	L1	10	107	EIGRGQPLGV	28287
HPV33	L1	8	240	EPYGDSL	28288

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	9	240	EPYGDSLFF	28289
HPV33	L1	10	240	EPYGDSLFFF	28290
HPV33	L1	11	240	EPYGDSLFFFL	28291
HPV33	L1	8	253	EQMFVRHIF	28292
HPV33	L1	9	253	EQMFVRHFF	28293
HPV33	L1	8	447	EVDLKEKF	28294
HPV33	L1	10	447	EVDLKEKFS	28295
HPV33	L1	8	385	EVMTYIHA	28296
HPV33	L1	9	385	EVMTYIHAM	28297
HPV33	L1	9	467	FLQAGLKA	28298
HPV33	L1	8	249	FLRREQMF	28299
HPV33	L1	9	249	FLRREQMFV	28300
HPV33	L1	8	461	FPLGRKFL	28301
HPV33	L1	9	461	FPLGRKFLL	28302
HPV33	L1	11	461	FPLGRKFLQ	28303
HPV33	L1	8	292	FPTPSGSM	28304
HPV33	L1	9	292	FPTPSGSMV	28305
HPV33	L1	8	375	FQLCKVTL	28306
HPV33	L1	10	375	FQLCKVTLTA	28307
HPV33	L1	8	373	FVQLCKVTL	28308
HPV33	L1	10	373	FVQLCKVTL	28309
HPV33	L1	9	256	FVRHFFNRA	28310
HPV33	L1	8	322	GICWGNQV	28311
HPV33	L1	9	322	GICWGNQVF	28312
HPV33	L1	10	322	GICWGNQVFV	28313
HPV33	L1	8	117	GISGHPLL	28314
HPV33	L1	11	117	GISGHPLLNKF	28315
HPV33	L1	10	105	GLEIGRQPL	28316
HPV33	L1	8	472	GLKAKPKL	28317
HPV33	L1	11	472	GLKAKPKLKRA	28318
HPV33	L1	9	68	GLQYRVFRV	28319
HPV33	L1	11	68	GLQYRVFRVRL	28320
HPV33	L1	8	404	GLTPPPSA	28321
HPV33	L1	10	404	GLTPPPSASL	28322
HPV33	L1	11	138	GQPGADNRECL	28323
HPV33	L1	8	111	GQPLGVGI	28324
HPV33	L1	8	173	GVACTNAA	28325
HPV33	L1	10	173	GVACTNAAPA	28326
HPV33	L1	9	115	GVGISGHP	28327
HPV33	L1	10	115	GVGISGHPLL	28328
HPV33	L1	9	365	HVEEYDLQF	28329
HPV33	L1	10	365	HVEEYDLQFV	28330
HPV33	L1	11	365	HVEEYDLQFVF	28331
HPV33	L1	8	194	IIEDGDMV	28332
HPV33	L1	9	397	ILEDWQFGL	28333
HPV33	L1	10	60	KLLVPKVSGL	28334

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	11	236	KMTSEPYGDSL	28335
HPV33	L1	8	476	KPKLKRAA	28336
HPV33	L1	8	163	KPPTGEHW	28337
HPV33	L1	8	309	KPYWLQRA	28338
HPV33	L1	8	153	KQTQLCLL	28339
HPV33	L1	9	65	KVSGLOYRV	28340
HPV33	L1	10	65	KVSGLOYRVF	28341
HPV33	L1	8	379	KVTLTAEV	28342
HPV33	L1	9	379	KVTLTAEVN	28343
HPV33	L1	11	379	KVTLTAEVMTY	28344
HPV33	L1	8	20	KVVSTDEY	28345
HPV33	L1	9	20	KVVSTDEYV	28346
HPV33	L1	11	190	LINTIIEDGDM	28347
HPV33	L1	8	42	LLAVGHPY	28348
HPV33	L1	9	42	LLAVGHPYF	28349
HPV33	L1	11	42	LLAVGHPYFSI	28350
HPV33	L1	8	468	LLQAGLKA	28351
HPV33	L1	9	61	LLVPKVSGL	28352
HPV33	L1	11	61	LLVPKVSGLQY	28353
HPV33	L1	9	78	LPDPNKFGE	28354
HPV33	L1	9	13	LPPVPVSKV	28355
HPV33	L1	10	13	LPPVPVSKVV	28356
HPV33	L1	11	469	LQAGLKAKPKL	28357
HPV33	L1	8	213	LQANKSDV	28358
HPV33	L1	10	213	LQANKSDVPI	28359
HPV33	L1	8	413	LQDTYRFV	28360
HPV33	L1	10	371	LQFVFQLCKV	28361
HPV33	L1	11	313	LQRAQGHNNGI	28362
HPV33	L1	8	69	LQYRVFRV	28363
HPV33	L1	10	69	LQYRVFRVRL	28364
HPV33	L1	8	62	LVPKVSGL	28365
HPV33	L1	10	62	LVPKVSGLQY	28366
HPV33	L1	8	99	LVWACVGL	28367
HPV33	L1	10	99	LVWACVGLEI	28368
HPV33	L1	9	200	MVDTGFGCM	28369
HPV33	L1	11	200	MVDTGFGCMDF	28370
HPV33	L1	8	299	MVTSESQ	28371
HPV33	L1	9	299	MVTSESQF	28372
HPV33	L1	8	341	NMTLCTQV	28373
HPV33	L1	8	394	NPDILEDW	28374
HPV33	L1	10	394	NPDILEDWQF	28375
HPV33	L1	8	93	NPDTQRLV	28376
HPV33	L1	9	93	NPDTQRLVW	28377
HPV33	L1	10	93	NPDTQRLVWA	28378
HPV33	L1	8	54	NPTNAKKL	28379
HPV33	L1	9	54	NPTNAKKLL	28380

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	10	54	NPTNAKKLLV	28381
HPV33	L1	8	327	NQVFVTVV	28382
HPV33	L1	11	221	PIDICGSTCKY	28383
HPV33	L1	8	187	PLELINTI	28384
HPV33	L1	9	187	PLELINTII	28385
HPV33	L1	8	439	PLGKYTFW	28386
HPV33	L1	10	439	PLGKYTFEVEV	28387
HPV33	L1	8	462	PLGRKFLL	28388
HPV33	L1	10	462	PLGRKFLQA	28389
HPV33	L1	11	113	PLGVGISGHPL	28390
HPV33	L1	9	432	PPKEKEDPL	28391
HPV33	L1	9	186	PPELINTI	28392
HPV33	L1	10	186	PPELINTII	28393
HPV33	L1	11	407	PPSASLQDTY	28394
HPV33	L1	10	408	PPSASLQDTY	28395
HPV33	L1	11	164	PPTGEHWGKGV	28396
HPV33	L1	8	14	PPVPVSKV	28397
HPV33	L1	9	14	PPVPVSKVV	28398
HPV33	L1	8	15	PVPVSKVV	28399
HPV33	L1	11	17	PVSKVVSTDEY	28400
HPV33	L1	9	376	QLCKVTLTA	28401
HPV33	L1	11	376	QLCKVTLTAEV	28402
HPV33	L1	8	305	QLFNKPYW	28403
HPV33	L1	9	305	QLFNKPYWL	28404
HPV33	L1	8	254	QMFVRHFF	28405
HPV33	L1	11	254	QMFVRHFFNRA	28406
HPV33	L1	10	139	QPGADNRECL	28407
HPV33	L1	8	347	QVTSNSTY	28408
HPV33	L1	9	41	RLAVGHPY	28409
HPV33	L1	10	41	RLAVGHPYF	28410
HPV33	L1	8	77	RLDPNKF	28411
HPV33	L1	10	77	RLDPNKF	28412
HPV33	L1	98	98	RLVWACVGL	28413
HPV33	L1	11	98	RLVWACVGL	28414
HPV33	L1	8	5	RPSEATVY	28415
HPV33	L1	9	5	RPSEATVYL	28416
HPV33	L1	10	75	RVRLDPNKF	28417
HPV33	L1	8	51	SIKNPTNA	28418
HPV33	L1	11	51	SIKNPTNAKKL	28419
HPV33	L1	8	285	SIQSSAFF	28420
HPV33	L1	11	32	SIYYAGSSRL	28421
HPV33	L1	11	245	SLFFFLRREQM	28422
HPV33	L1	8	412	SLQDTYRF	28423
HPV33	L1	9	412	SLQDTYRFV	28424
HPV33	L1	9	149	SMDYKQTQL	28425
HPV33	L1	11	149	SMDYKQTQLCL	28426

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L1	9	298	SMVTSESQL	28427
HPV33	L1	10	298	SMVTSESOLF	28428
HPV33	L1	10	422	SQAITCQKTV	28429
HPV33	L1	8	304	SOLFENKPY	28430
HPV33	L1	9	304	SOLFENKPYW	28431
HPV33	L1	10	304	SOLFENKPYWL	28432
HPV33	L1	8	2	SVWRPSEA	28433
HPV33	L1	10	2	SVWRPSEATV	28434
HPV33	L1	11	2	SVWRPSEATVY	28435
HPV33	L1	8	193	TIIEDGDM	28436
HPV33	L1	9	193	TIIEDGDMV	28437
HPV33	L1	10	266	TLGEAVPDDL	28438
HPV33	L1	11	266	TLGEAVPDDL	28439
HPV33	L1	9	212	TLQANKSDV	28440
HPV33	L1	11	212	TLQANKSDVPI	28441
HPV33	L1	9	381	TLTAEVMTY	28442
HPV33	L1	10	381	TLTAEVMTYI	28443
HPV33	L1	8	406	TPPPSASL	28444
HPV33	L1	9	96	TQRLVWACV	28445
HPV33	L1	11	96	TQRLVWACVGL	28446
HPV33	L1	9	346	TQVTSdst	28447
HPV33	L1	11	430	TVPPKEKEDPL	28448
HPV33	L1	11	332	TVVDTRSTNM	28449
HPV33	L1	9	10	TVYLPVPV	28450
HPV33	L1	8	386	VMTYIHAM	28451
HPV33	L1	9	63	VPKVSGLQY	28452
HPV33	L1	11	63	VPKVSGLQYRV	28453
HPV33	L1	10	431	VPPKEKEDPL	28454
HPV33	L1	10	333	VVDTRSTNM	28455
HPV33	L1	8	21	VVSTDEYV	28456
HPV33	L1	11	401	WQFGLTPPPSA	28457
HPV33	L1	9	389	YIHAMNPDI	28458
HPV33	L1	10	389	YIHAMNPDI	28459
HPV33	L1	9	276	YIKSGTTA	28460
HPV33	L1	11	276	YIKSGTTASI	28461
HPV33	L1	8	362	YIRIIVEEY	28462
HPV33	L1	10	362	YIRIIVEEYDL	28463
HPV33	L1	9	234	YIKMTSEPY	28464
HPV33	L1	10	12	YLPVPVSKV	28465
HPV33	L1	11	12	YLPVPVSKVV	28466
HPV33	L1	8	27	YVSRISIY	28467
HPV33	L1	9	27	YVSRISIY	28468
HPV33	L1	10	27	YVSRISIYY	28469
HPV33	L1	11	27	YVSRISIYYA	28470
HPV33	L2	8	140	AINVSSV	28471
HPV33	L2	11	82	AIPQIRPPV	28472

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	9	291	AITSRRIHTV	28473
HPV33	L2	11	291	AITSRRIHTVRF	28474
HPV33	L2	9	173	APAEASGHF	28475
HPV33	L2	10	173	APAEASGHFI	28476
HPV33	L2	11	173	APAEASGHFIF	28477
HPV33	L2	9	276	APDPDFLDI	28478
HPV33	L2	10	276	APDPDFLDII	28479
HPV33	L2	11	276	APDPDFLDIIA	28480
HPV33	L2	10	120	APSIPTSGF	28481
HPV33	L2	9	27	CPPDVIPKV	28482
HPV33	L2	9	283	DIALLHRPA	28483
HPV33	L2	10	283	DIALLHRPAI	28484
HPV33	L2	10	272	DISPAPDPDF	28485
HPV33	L2	11	272	DISPAPDPDFL	28486
HPV33	L2	8	327	DLSPIVPL	28487
HPV33	L2	11	239	DPAFLTSPHKL	28488
HPV33	L2	8	278	DPDFLDII	28489
HPV33	L2	9	278	DPDFLDIIA	28490
HPV33	L2	10	278	DPDFLDIALL	28491
HPV33	L2	8	261	DPEDTLQF	28492
HPV33	L2	9	77	DPPTAAIPL	28493
HPV33	L2	9	42	DQILKYGSL	28494
HPV33	L2	11	42	DQILKYGSLGV	28495
HPV33	L2	9	369	DVDNVHTPM	28496
HPV33	L2	11	30	DVIPKVEGSI	28497
HPV33	L2	11	130	DVTTSDITTPA	28498
HPV33	L2	10	364	DVYADDVDNV	28499
HPV33	L2	9	165	EPSVLHPPA	28500
HPV33	L2	11	165	EPSVLHPAPA	28501
HPV33	L2	8	341	EQYELQPL	28502
HPV33	L2	8	113	FIEAGAPA	28503
HPV33	L2	11	113	FIEAGAPAPSI	28504
HPV33	L2	8	181	FIFSSPTV	28505
HPV33	L2	10	447	FILRRRRKRF	28506
HPV33	L2	11	281	FLDIALLHRPA	28507
HPV33	L2	8	242	FLTSPHKL	28508
HPV33	L2	9	242	FLTSPHKLII	28509
HPV33	L2	11	242	FLTSPHKLITY	28510
HPV33	L2	8	428	FPFDITV	28511
HPV33	L2	11	428	FPFDITVVDDGA	28512
HPV33	L2	8	415	FPTSSPFV	28513
HPV33	L2	10	415	FPTSSPFVPI	28514
HPV33	L2	8	456	FPYFFTDV	28515
HPV33	L2	10	456	FPYFFTDVRV	28516
HPV33	L2	11	456	FPYFFTDVRVA	28517
HPV33	L2	9	268	FQHSDISPA	28518

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	8	440	FVLHPSYF	28519
HPV33	L2	9	440	FVLHPSYFI	28520
HPV33	L2	10	440	FVLHPSYFIL	28521
HPV33	L2	8	421	FVPISPF	28522
HPV33	L2	10	421	FVPISPFPF	28523
HPV33	L2	10	201	FVVSTDSSNV	28524
HPV33	L2	10	361	GLYDVYADDV	28525
HPV33	L2	10	226	GLYSRNTQQV	28526
HPV33	L2	8	407	GPDIPSPL	28527
HPV33	L2	9	407	GPDIPSPLF	28528
HPV33	L2	8	98	GPLDSSIV	28529
HPV33	L2	10	98	GPLDSSIVSL	28530
HPV33	L2	11	98	GPLDSSIVSLI	28531
HPV33	L2	9	51	GVFFGGGLGI	28532
HPV33	L2	11	158	HLNPTFTEPSV	28533
HPV33	L2	8	170	HPPAPAEA	28534
HPV33	L2	8	284	IIALHRPA	28535
HPV33	L2	9	284	IIALHRPAI	28536
HPV33	L2	9	44	ILKYGSLGV	28537
HPV33	L2	10	44	ILKYGSLGVF	28538
HPV33	L2	11	44	ILKYGSLGVFF	28539
HPV33	L2	9	448	ILRRRRKRF	28540
HPV33	L2	11	448	ILRRRRKRFPY	28541
HPV33	L2	8	216	IPGSRPVA	28542
HPV33	L2	10	216	IPGSRPVARL	28543
HPV33	L2	9	32	IPKVEGSTI	28544
HPV33	L2	10	32	IPKVEGSTIA	28545
HPV33	L2	11	394	IPLNTGFDTPV	28546
HPV33	L2	10	83	IPLQPIRPPV	28547
HPV33	L2	8	196	IPMDTFV	28548
HPV33	L2	9	123	IPTPSGFDV	28549
HPV33	L2	8	152	IQTISTHL	28550
HPV33	L2	8	331	IVPLDHTV	28551
HPV33	L2	10	104	IVSLIEETSF	28552
HPV33	L2	11	104	IVSLIEETSEI	28553
HPV33	L2	8	433	IVVDGADF	28554
HPV33	L2	9	433	IVVDGADFV	28555
HPV33	L2	10	433	IVVDGADFVL	28556
HPV33	L2	9	248	KLITYDNPA	28557
HPV33	L2	10	248	KLITYDNPAF	28558
HPV33	L2	9	316	KQIGARIHY	28559
HPV33	L2	10	316	KQIGARIHYI	28560
HPV33	L2	8	34	KVEGSTIA	28561
HPV33	L2	11	34	KVEGSTIADQI	28562
HPV33	L2	8	236	KVVDPAFL	28563
HPV33	L2	8	107	LIEETSEI	28564

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	10	107	LIEETSFIEA	28565
HPV33	L2	8	249	LITYDNPA	28566
HPV33	L2	9	249	LITYDNPAF	28567
HPV33	L2	8	266	LOFQHSDI	28568
HPV33	L2	11	266	LQFQHSDISPA	28569
HPV33	L2	8	85	LQIRPPV	28570
HPV33	L2	10	85	LQIRPPVTV	28571
HPV33	L2	8	377	MQHSYSTF	28572
HPV33	L2	9	377	MQHSYSTFA	28573
HPV33	L2	8	195	NIPMDTFV	28574
HPV33	L2	9	195	NIPMDTFVV	28575
HPV33	L2	9	160	NPTFTEPSV	28576
HPV33	L2	10	160	NPTFTEPSVL	28577
HPV33	L2	10	372	NVHTPMQHSY	28578
HPV33	L2	10	391	NVSIPLNTGF	28579
HPV33	L2	10	143	NVSSVGESSI	28580
HPV33	L2	8	209	NVTSSIP	28581
HPV33	L2	9	73	PIGTDPPTA	28582
HPV33	L2	10	73	PIGTDPPTAA	28583
HPV33	L2	11	73	PIGTDPPTAAI	28584
HPV33	L2	8	215	PIPGSRPV	28585
HPV33	L2	9	215	PIPGSRPVA	28586
HPV33	L2	11	215	PIPGSRPVARL	28587
HPV33	L2	8	87	PIRPPVTV	28588
HPV33	L2	11	87	PIRPPVTVDTV	28589
HPV33	L2	8	423	PISFPFPF	28590
HPV33	L2	11	423	PISFPFPFDTI	28591
HPV33	L2	9	330	PIVPLDHTV	28592
HPV33	L2	11	333	PLDHTVPNEQY	28593
HPV33	L2	9	99	PLDSSIVSL	28594
HPV33	L2	10	99	PLDSSIVSLI	28595
HPV33	L2	9	413	PLFPTSSPF	28596
HPV33	L2	10	413	PLFPTSSPFV	28597
HPV33	L2	10	347	PLHDTSTSSY	28598
HPV33	L2	10	395	PLNTGFDTPV	28599
HPV33	L2	11	395	PLNTGFDTPVM	28600
HPV33	L2	9	84	PLQIRPPV	28601
HPV33	L2	11	84	PLQIRPPVTV	28602
HPV33	L2	9	376	PMQHSYSTF	28603
HPV33	L2	10	376	PMQHSYSTFA	28604
HPV33	L2	11	171	PPAPAEASGHF	28605
HPV33	L2	8	28	PPDVIPKV	28606
HPV33	L2	8	78	PPTAAIPL	28607
HPV33	L2	11	78	PPTAAIPLQPI	28608
HPV33	L2	8	90	PPVTVDTV	28609
HPV33	L2	11	90	PPVTVDTVGPL	28610

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	8	221	PVARLGLY	28611
HPV33	L2	8	403	PVMSGPDI	28612
HPV33	L2	10	91	PVTVDIVGPL	28613
HPV33	L2	8	317	QIGARIHY	28614
HPV33	L2	9	317	QIGARIHY	28615
HPV33	L2	8	43	QILKYGSL	28616
HPV33	L2	10	43	QILKYGSLGV	28617
HPV33	L2	11	43	QILKYGSLGVF	28618
HPV33	L2	8	16	QLYQTCKA	28619
HPV33	L2	9	86	QPIRPPVT	28620
HPV33	L2	11	346	QPLIDTSTSS	28621
HPV33	L2	9	233	QQVKVVDPA	28622
HPV33	L2	10	233	QQVKVVDPAF	28623
HPV33	L2	11	233	QQVKVVDPAFL	28624
HPV33	L2	8	234	QVKVVDPA	28625
HPV33	L2	9	234	QVKVVDPAF	28626
HPV33	L2	10	234	QVKVVDPAFL	28627
HPV33	L2	8	321	RIHYQDL	28628
HPV33	L2	11	321	RIHYQDLSP	28629
HPV33	L2	11	289	RPAITSRRHTV	28630
HPV33	L2	9	89	RPPVTVDIV	28631
HPV33	L2	8	220	RPVARLGL	28632
HPV33	L2	9	220	RPVARLGLY	28633
HPV33	L2	8	303	RVGQKATL	28634
HPV33	L2	9	357	SINDGLYDV	28635
HPV33	L2	10	357	SINDGLYDVY	28636
HPV33	L2	11	357	SINDGLYDVYA	28637
HPV33	L2	8	393	SIPLNTGF	28638
HPV33	L2	8	122	SIPTPSGF	28639
HPV33	L2	10	122	SIPTPSGFDV	28640
HPV33	L2	9	151	SIQTISTHL	28641
HPV33	L2	11	103	SIVSLIETSF	28642
HPV33	L2	9	49	SLGVFFGGL	28643
HPV33	L2	11	49	SLGVFFGGLGI	28644
HPV33	L2	8	106	SLIETSF	28645
HPV33	L2	9	106	SLIETSFI	28646
HPV33	L2	11	106	SLIETSFIEA	28647
HPV33	L2	8	274	SPAPDPDF	28648
HPV33	L2	9	274	SPAPDPDFL	28649
HPV33	L2	11	274	SPAPDPDFLDI	28650
HPV33	L2	9	425	SPFFPFDI	28651
HPV33	L2	10	425	SPFFPFDIV	28652
HPV33	L2	11	425	SPFFPFDIVV	28653
HPV33	L2	9	419	SPFVPSPF	28654
HPV33	L2	10	419	SPFVPSPF	28655
HPV33	L2	8	245	SPIKLITY	28656

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	10	329	SPIVPLDHTV	28657
HPV33	L2	10	412	SPLFTSSPF	28658
HPV33	L2	11	412	SPLFTSSPFV	28659
HPV33	L2	9	185	SPTVSTQSY	28660
HPV33	L2	10	146	SVGESSIQT	28661
HPV33	L2	9	167	SVLHPPAPA	28662
HPV33	L2	11	167	SVLHPPAPAEA	28663
HPV33	L2	9	39	TIADQILKY	28664
HPV33	L2	10	154	TIISTHLNPTF	28665
HPV33	L2	9	432	TIVVDGADF	28666
HPV33	L2	10	432	TIVVDGADFV	28667
HPV33	L2	11	432	TIVVDGADFVL	28668
HPV33	L2	10	309	TLKTRSGKQI	28669
HPV33	L2	9	265	TLQFQHSDI	28670
HPV33	L2	10	138	TPAINVSSV	28671
HPV33	L2	9	214	TPIGSRPV	28672
HPV33	L2	10	214	TPIGSRPVA	28673
HPV33	L2	10	375	TPMQISYSTF	28674
HPV33	L2	11	375	TPMQHSYSTFA	28675
HPV33	L2	11	125	TPSGFDVTTSA	28676
HPV33	L2	9	402	TPVMSGPDI	28677
HPV33	L2	9	15	TQLYQTCKA	28678
HPV33	L2	10	232	TQQVKVVDPA	28679
HPV33	L2	11	232	TQQVKVVDPAF	28680
HPV33	L2	9	190	TQSYENIPM	28681
HPV33	L2	8	93	TVDTIVGPL	28682
HPV33	L2	9	96	TVGPLDSSI	28683
HPV33	L2	10	96	TVGPLDSSIV	28684
HPV33	L2	9	337	TVPNEQYEL	28685
HPV33	L2	11	298	TVRESRVGQKA	28686
HPV33	L2	10	187	TVSTQSYENI	28687
HPV33	L2	10	31	VIPKVEGSTI	28688
HPV33	L2	11	31	VIPKVEGSTIA	28689
HPV33	L2	8	168	VLHPPAPA	28690
HPV33	L2	10	168	VLHPPAPAEA	28691
HPV33	L2	8	441	VLHPSYFI	28692
HPV33	L2	9	441	VLHPSYFIL	28693
HPV33	L2	11	404	VMSGPDIPSPL	28694
HPV33	L2	10	72	VPIGTDPTTA	28695
HPV33	L2	11	72	VPIGTDPTTAA	28696
HPV33	L2	9	422	VPISPPFPF	28697
HPV33	L2	8	338	VPNEQYEL	28698
HPV33	L2	11	338	VPNEQYELQPL	28699
HPV33	L2	8	434	VVDGADFV	28700
HPV33	L2	9	434	VVDGADFVL	28701
HPV33	L2	9	202	VVSTDSSNV	28702

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV33	L2	8	325	YQDLSPIV	28703
HPV33	L2	10	325	YQDLSPVPL	28704
HPV33	L2	11	71	YVPIGTDPTA	28705
HPV45	E1	9	232	AIFGVNPTV	28706
HPV45	E1	10	232	AIFGVNPTVA	28707
HPV45	E1	9	532	ALDGNPIS	28708
HPV45	E1	8	68	ALFHAQEV	28709
HPV45	E1	9	311	ALYWYRTGI	28710
HPV45	E1	9	199	AMLAVFKDI	28711
HPV45	E1	10	199	AMLAVFKDIY	28712
HPV45	E1	11	512	AMLDATITCW	28713
HPV45	E1	10	66	AQALFHAQEV	28714
HPV45	E1	8	72	AQEVQND	28715
HPV45	E1	10	72	AQEVQNDQV	28716
HPV45	E1	11	72	AQEVQNDQVL	28717
HPV45	E1	8	408	AQKRQNMN	28718
HPV45	E1	11	408	AQKRQNMNSQW	28719
HPV45	E1	10	373	AQLADCNSA	28720
HPV45	E1	11	373	AQLADCNSAA	28721
HPV45	E1	11	79	AQVLHLLKRF	28722
HPV45	E1	9	202	AVFKDIYGL	28723
HPV45	E1	11	202	AVFKDIYGLSF	28724
HPV45	E1	10	399	AVMCRHYKRA	28725
HPV45	E1	8	465	CILLYGPA	28726
HPV45	E1	8	259	CLDCKWGV	28727
HPV45	E1	9	259	CLDCKWGVV	28728
HPV45	E1	10	259	CLDCKWGVLI	28729
HPV45	E1	11	259	CLDCKWGVLL	28730
HPV45	E1	9	297	CMLIEPPKL	28731
HPV45	E1	10	552	CPILLTSNI	28732
HPV45	E1	10	390	CQAKYLDKCA	28733
HPV45	E1	11	390	CQAKYLDKCAV	28734
HPV45	E1	10	634	CVTGQNTIRPL	28735
HPV45	E1	10	206	DIYGLSFTDL	28736
HPV45	E1	11	206	DIYGLSFTDLV	28737
HPV45	E1	9	614	DLIEDDEDA	28738
HPV45	E1	8	349	DLSDMVQW	28739
HPV45	E1	9	349	DLSDMVQWA	28740
HPV45	E1	10	349	DLSDMVQWAF	28741
HPV45	E1	9	108	DLSPRLQEI	28742
HPV45	E1	11	108	DLSPRLQEISL	28743
HPV45	E1	8	361	DLTDESDM	28744
HPV45	E1	9	361	DLTDESDMA	28745
HPV45	E1	10	361	DLTDESDMAF	28746
HPV45	E1	9	367	DMAFYAQL	28747
HPV45	E1	10	367	DMAFYAQLA	28748

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	10	46	DMVDFIDTQL	28749
HPV45	E1	11	352	DMVQWAFDNDL	28750
HPV45	E1	8	562	DPAKDNKW	28751
HPV45	E1	10	562	DPAKDNKWPY	28752
HPV45	E1	11	562	DPAKDNKWPYL	28753
HPV45	E1	9	179	DPHCSTEL	28754
HPV45	E1	11	30	DVISDEDETA	28755
HPV45	E1	10	596	EINDKNWKCF	28756
HPV45	E1	11	596	EINDKNWKCF	28757
HPV45	E1	11	115	EISLNSGHKKA	28758
HPV45	E1	8	186	ELKELLQA	28759
HPV45	E1	10	189	ELLQASNKKA	28760
HPV45	E1	11	189	ELLQASNKKAA	28761
HPV45	E1	8	504	EPLADTKV	28762
HPV45	E1	9	504	EPLADTKVA	28763
HPV45	E1	10	504	EPLADTKVAM	28764
HPV45	E1	11	504	EPLADTKVAML	28765
HPV45	E1	9	301	EPPKLRSSV	28766
HPV45	E1	10	301	EPPKLRSSVA	28767
HPV45	E1	11	301	EPPKLRSSVAA	28768
HPV45	E1	8	59	EQAEEQETA	28769
HPV45	E1	10	59	EQAEEQETAQA	28770
HPV45	E1	11	59	EQAEEQETAQAL	28771
HPV45	E1	8	62	EQETAQAL	28772
HPV45	E1	9	62	EQETAQALF	28773
HPV45	E1	11	62	EQETAQALFHA	28774
HPV45	E1	9	101	EQLSVDITDL	28775
HPV45	E1	9	141	EVEAAETQV	28776
HPV45	E1	11	141	EVEAAETQVTV	28777
HPV45	E1	8	74	EVQNDAQV	28778
HPV45	E1	9	74	EVQNDAQVL	28779
HPV45	E1	11	74	EVQNDAQVLHL	28780
HPV45	E1	9	324	EVSGDTPW	28781
HPV45	E1	10	324	EVSGDTPEWI	28782
HPV45	E1	8	50	FIDTQLSI	28783
HPV45	E1	8	483	FIHFLQGA	28784
HPV45	E1	9	483	FIHFLQGAII	28785
HPV45	E1	10	483	FIHFLQGAII	28786
HPV45	E1	8	446	FISFLRAL	28787
HPV45	E1	11	446	FISFLRALKEF	28788
HPV45	E1	11	456	FLKGTGPKNCI	28789
HPV45	E1	8	385	FLKSNCQA	28790
HPV45	E1	10	385	FLKSNCQAKY	28791
HPV45	E1	11	385	FLKSNCQAKYL	28792
HPV45	E1	9	486	FLQGAISF	28793
HPV45	E1	10	486	FLQGAISFV	28794

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	8	449	FLRALKEF	28795
HPV45	E1	9	449	FLRALKEFL	28796
HPV45	E1	9	438	FLRYQGVF	28797
HPV45	E1	10	438	FLRYQGVFEI	28798
HPV45	E1	10	585	FPFDKNGNPV	28799
HPV45	E1	11	585	FPFDKNGNPVY	28800
HPV45	E1	8	494	FVNSNSHF	28801
HPV45	E1	9	494	FVNSNSHFW	28802
HPV45	E1	10	494	FVNSNSHFWL	28803
HPV45	E1	9	342	GIDDSNFDL	28804
HPV45	E1	10	626	GIPFGTFKCV	28805
HPV45	E1	8	318	GISNISEV	28806
HPV45	E1	8	209	GLSFTDLV	28807
HPV45	E1	11	209	GLSFTDLVRNF	28808
HPV45	E1	8	286	GLSTLLHV	28809
HPV45	E1	8	480	GMSFIHFL	28810
HPV45	E1	11	480	GMSFIHFLOGA	28811
HPV45	E1	9	470	GPANTGKSY	28812
HPV45	E1	10	470	GPANTGKSYF	28813
HPV45	E1	8	443	GVEFISFL	28814
HPV45	E1	10	443	GVEFISFLRA	28815
HPV45	E1	11	443	GVEFISFLRAL	28816
HPV45	E1	8	265	GVLILAL	28817
HPV45	E1	10	265	GVLILALLRY	28818
HPV45	E1	10	235	GVNPTVAEGF	28819
HPV45	E1	9	256	HIQCLDCKW	28820
HPV45	E1	11	256	HIQCLDCKWGV	28821
HPV45	E1	8	83	HLLKRKFA	28822
HPV45	E1	8	292	HVPETCML	28823
HPV45	E1	9	292	HVPETCMLI	28824
HPV45	E1	11	338	IIQHGIDDSNF	28825
HPV45	E1	11	491	IISFVNSNSHF	28826
HPV45	E1	10	555	ILLTSNIDPA	28827
HPV45	E1	9	627	IPFGTFKCV	28828
HPV45	E1	8	257	IQCLDCKW	28829
HPV45	E1	10	257	IQCLDCKWGV	28830
HPV45	E1	11	257	IQCLDCKWGV	28831
HPV45	E1	10	339	IQHGIDDSNF	28832
HPV45	E1	11	333	IQRULTIQHGI	28833
HPV45	E1	9	23	IVEKKTGDV	28834
HPV45	E1	10	23	IVEKKTGDVI	28835
HPV45	E1	10	435	IVQFLRYQGV	28836
HPV45	E1	8	425	KIDEGGDW	28837
HPV45	E1	11	425	KIDEGGDWRPI	28838
HPV45	E1	8	304	KLRSSVAA	28839
HPV45	E1	9	304	KLRSSVAAL	28840

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV45	E1	10	304	KLRSSVAALY	28841
IIPV45	E1	11	304	KLRSSVAALYW	28842
HPV45	E1	9	249	KPATLYAHI	28843
HPV45	E1	11	545	KPLLQLKCPPI	28844
HPV45	E1	8	510	KVAMLDDA	28845
HPV45	E1	11	299	LIEPPKLRSSV	28846
HPV45	E1	8	247	LJKPATLY	28847
HPV45	E1	9	247	LJKPATLYA	28848
HPV45	E1	11	247	LJKPATLYAHI	28849
HPV45	E1	8	267	LILALLRY	28850
HPV45	E1	9	290	LLHVPETCM	28851
HPV45	E1	10	290	LLHVPETCML	28852
HPV45	E1	11	290	LLHVPETCMLI	28853
HPV45	E1	9	190	LLQASNKKA	28854
HPV45	E1	10	190	LLQASNKKAA	28855
HPV45	E1	11	190	LLQASNKKAAAM	28856
HPV45	E1	9	547	LLQLKCPPI	28857
HPV45	E1	10	547	LLQLKCPPII	28858
HPV45	E1	11	547	LLQLKCPPIIL	28859
IIPV45	E1	11	271	LLRYKCGKNRL	28860
HPV45	E1	9	556	LLTSNIDPA	28861
HPV45	E1	8	191	LQASNKKA	28862
HPV45	E1	9	191	LQASNKKAA	28863
HPV45	E1	10	191	LQASNKKAAAM	28864
HPV45	E1	11	191	LQASNKKAAAML	28865
HPV45	E1	8	487	LQGAISF	28866
HPV45	E1	9	487	LQGAISFV	28867
HPV45	E1	8	548	LQLKCPPI	28868
HPV45	E1	9	548	LQLKCPPII	28869
HPV45	E1	10	548	LQLKCPPIIL	28870
HPV45	E1	8	200	MLAVFKDI	28871
HPV45	E1	9	200	MLAVFKDIY	28872
HPV45	E1	11	200	MLAVFKDIYGL	28873
HPV45	E1	10	513	MLDDATHTCW	28874
HPV45	E1	8	298	MLIEPPKL	28875
HPV45	E1	9	47	MVDFIDTQL	28876
HPV45	E1	11	47	MVDFIDTQLSI	28877
HPV45	E1	10	353	MVQWAFDNDL	28878
HPV45	E1	10	560	NIDPAKDNKW	28879
HPV45	E1	8	414	NMSQWIKY	28880
HPV45	E1	8	237	NPTVAEGF	28881
HPV45	E1	11	237	NPTVAEGFKTL	28882
HPV45	E1	11	592	NPVVEINDKNW	28883
HPV45	E1	8	177	NVDPHICSI	28884
HPV45	E1	11	177	NVDPHICSITEI	28885
HPV45	E1	8	554	PILLTSNI	28886

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV45	E1	11	554	PILLTSNIDPA	28887
HPV45	E1	11	537	PISDRKHKPL	28888
HPV45	E1	8	434	PIVQFLRY	28889
HPV45	E1	11	434	PIVQFLRYQGV	28890
HPV45	E1	8	505	PLADTKVA	28891
HPV45	E1	9	505	PLADTKVAM	28892
HPV45	E1	10	505	PLADTKVAML	28893
HPV45	E1	8	98	PLGEQLSV	28894
HPV45	E1	10	546	PLLQLKCPPI	28895
HPV45	E1	11	546	PLLQLKCPPIIL	28896
HPV45	E1	9	553	PPILLTSNI	28897
HPV45	E1	8	302	PPKLRSSV	28898
HPV45	E1	9	302	PPKLRSSVA	28899
HPV45	E1	10	302	PPKLRSSVAA	28900
HPV45	E1	11	302	PPKLRSSVAAAL	28901
HPV45	E1	10	593	PVYEINDKNW	28902
HPV45	E1	9	374	QLADCNNA	28903
HPV45	E1	10	374	QLADCNNAA	28904
HPV45	E1	11	374	QLADCNNAAAA	28905
HPV45	E1	8	549	QLKCPPIIL	28906
HPV45	E1	9	549	QLKCPPIILL	28907
HPV45	E1	8	54	QLSICEQA	28908
HPV45	E1	8	102	QLSVDITDL	28909
HPV45	E1	8	412	QMNMSQWI	28910
HPV45	E1	10	412	QMNMSQWIKY	28911
HPV45	E1	10	80	QVLHLKKRF	28912
HPV45	E1	11	80	QVLHLKKRFA	28913
HPV45	E1	8	148	QVTVNTNA	28914
HPV45	E1	11	612	RDLDEHDEDA	28915
HPV45	E1	10	128	RFTISDSGY	28916
HPV45	E1	9	335	RLTIQHGI	28917
HPV45	E1	8	280	RLTVAKGL	28918
HPV45	E1	11	280	RLTVAKGLSTL	28919
HPV45	E1	9	433	RPVQFLRY	28920
HPV45	E1	8	411	RQNMMSQW	28921
HPV45	E1	9	411	RQNMMSQWI	28922
HPV45	E1	11	411	ROMNMSQWIKY	28923
HPV45	E1	10	575	RVTVFTPPHA	28924
HPV45	E1	11	575	RVTVFTPPHAF	28925
HPV45	E1	11	56	SICEQAEQETA	28926
HPV45	E1	9	539	SIDRKHKPL	28927
HPV45	E1	10	539	SIDRKHKPLL	28928
HPV45	E1	8	183	SITELKEL	28929
HPV45	E1	9	183	SITELKELL	28930
HPV45	E1	11	183	SITELKELLQA	28931
HPV45	E1	9	117	SLNSGHKKA	28932

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	9	97	SPLGEQLSV	28933
HPV45	E1	9	110	SPRLQEISL	28934
HPV45	E1	11	416	SQWIKYRCSKI	28935
HPV45	E1	8	308	SVAALYWY	28936
HPV45	E1	10	104	SVDTDLSPL	28937
HPV45	E1	10	22	TIVEKKTGDV	28938
HPV45	E1	11	22	TIVEKKTGDVI	28939
HPV45	E1	8	246	TLIKPATL	28940
HPV45	E1	9	246	TLIKPATLY	28941
HPV45	E1	10	246	TLIKPATLYA	28942
HPV45	E1	10	289	TLLHVPETCM	28943
HPV45	E1	11	289	TLLHVPETCML	28944
HPV45	E1	9	252	TLYAHIQCL	28945
HPV45	E1	8	329	TPEWIQRL	28946
HPV45	E1	10	329	TPEWIQRLTI	28947
HPV45	E1	11	329	TPEWIQRLTIH	28948
HPV45	E1	8	460	TPKKNCIL	28949
HPV45	E1	9	460	TPKKNCILL	28950
HPV45	E1	10	460	TPKKNCILLY	28951
HPV45	E1	9	53	TQLSICEQA	28952
HPV45	E1	9	147	TQVTVNTNA	28953
HPV45	E1	9	239	TVABGFCTL	28954
HPV45	E1	10	239	TVABGFCTLI	28955
HPV45	E1	9	282	TVAKGLSTL	28956
HPV45	E1	10	282	TVAKGLSTLL	28957
HPV45	E1	8	577	TVTFEPHA	28958
HPV45	E1	9	577	TVTFEPHAF	28959
HPV45	E1	11	577	TVTFEPHAPPF	28960
HPV45	E1	10	31	VSDEDETA	28961
HPV45	E1	9	81	VLHLLKRRKF	28962
HPV45	E1	10	81	VLHLLKRRKFA	28963
HPV45	E1	9	266	VLILALLRY	28964
HPV45	E1	11	230	VMAIFGVNPTV	28965
HPV45	E1	9	400	VMCRIVKRA	28966
HPV45	E1	8	293	VPETCMLI	28967
HPV45	E1	9	436	VQFLRYQGV	28968
HPV45	E1	11	436	VQFLRYQGVVEF	28969
HPV45	E1	8	75	VQNDAAQVL	28970
HPV45	E1	10	75	VQNDAAQVLHL	28971
HPV45	E1	11	75	VQNDAAQVLHLL	28972
HPV45	E1	9	354	VQWAFDNDL	28973
HPV45	E1	9	418	WIKYRCSKI	28974
HPV45	E1	8	332	WIQRLTI	28975
HPV45	E1	10	502	WLEPLADTKV	28976
HPV45	E1	11	502	WLEPLADTKVA	28977
HPV45	E1	8	569	WPYLESRV	28978

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E1	10	569	WPYLESRTV	28979
HPV45	E1	11	569	WPYLESRTVTF	28980
HPV45	E1	8	229	WVMAIFGV	28981
HPV45	E1	8	571	YLESRTV	28982
HPV45	E1	9	571	YLESRTVTF	28983
HPV45	E1	11	571	YLESRTVTF	28984
HPV45	E1	8	394	YKDCAVM	28985
HPV45	E1	11	528	YMRNALDGNPI	28986
HPV45	E1	9	441	YQGVFEFISF	28987
HPV45	E1	10	441	YQGVFEFISFL	28988
HPV45	E2	8	78	AIELQMAL	28989
HPV45	E2	11	78	AIELQMALKGL	28990
HPV45	E2	11	47	AILFTAREIHGI	28991
HPV45	E2	10	84	ALKGLAQSKY	28992
HPV45	E2	10	16	ALQDKILDHY	28993
HPV45	E2	10	89	AQSKYNNEEW	28994
HPV45	E2	9	305	CLRYRLRKY	28995
HPV45	E2	10	305	CLRYRLRKYA	28996
HPV45	E2	10	134	CMNYVVWDSI	28997
HPV45	E2	11	134	CMNYVVWDSIY	28998
HPV45	E2	8	158	CVSYWGVY	28999
HPV45	E2	9	158	CVSYWGVYY	29000
HPV45	E2	10	158	CVSYWGVYYI	29001
HPV45	E2	8	31	DINSQISY	29002
HPV45	E2	9	31	DINSQISYW	29003
HPV45	E2	11	31	DINSQISYWQL	29004
HPV45	E2	9	351	DVVTIPNSV	29005
HPV45	E2	11	351	DVVTIPNSVQI	29006
HPV45	E2	8	319	EISSTWHW	29007
HPV45	E2	9	80	ELQMALKGL	29008
HPV45	E2	10	80	ELQMALKGLA	29009
HPV45	E2	11	106	ELWNTSPSCF	29010
HPV45	E2	11	258	EQHHGRVNTHV	29011
HPV45	E2	8	343	EVQRNTFL	29012
HPV45	E2	10	343	EVQRNTFLDV	29013
HPV45	E2	11	343	EVQRNTFLDVV	29014
HPV45	E2	8	192	EVQYGGNV	29015
HPV45	E2	9	192	EVQYGGNVI	29016
HPV45	E2	11	349	FLDVVTIPNSV	29017
HPV45	E2	11	334	GILTVTYNSEV	29018
HPV45	E2	9	56	GITKLNHQV	29019
HPV45	E2	10	56	GITKLNHQVV	29020
HPV45	E2	8	150	GIWDKTAA	29021
HPV45	E2	10	150	GIWDKTAAACV	29022
HPV45	E2	10	255	GLTEQHHGRV	29023
HPV45	E2	9	295	HLKGDKNSL	29024

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E2	9	62	HQVPPPI	29025
HPV45	E2	11	293	IIHLKGDKNLS	29026
HPV45	E2	10	48	ILFTAREHGI	29027
HPV45	E2	10	335	ILTVTYNSEV	29028
HPV45	E2	9	355	IPNSVQISV	29029
HPV45	E2	11	355	IPNSVQISVGY	29030
HPV45	E2	8	219	IVRQLQIA	29031
HPV45	E2	10	59	KLNHQVVPPI	29032
HPV45	E2	9	2	KMQTPKESL	29033
HPV45	E2	8	240	KPHIQTPA	29034
HPV45	E2	10	284	KVCSGNTTPI	29035
HPV45	E2	11	284	KVCSGNTTPII	29036
HPV45	E2	8	41	LIRLENAI	29037
HPV45	E2	9	41	LIRLENAIL	29038
HPV45	E2	10	41	LIRLENAILF	29039
HPV45	E2	9	17	LQDKILDHY	29040
HPV45	E2	8	100	LQDTCEEL	29041
HPV45	E2	9	100	LQDTCEELW	29042
HPV45	E2	8	81	LQALKGL	29043
HPV45	E2	9	81	LQALKGLA	29044
HPV45	E2	8	3	MQTPKESL	29045
HPV45	E2	10	69	NISKSASHKA	29046
HPV45	E2	11	69	NISKSASHKAI	29047
HPV45	E2	9	198	NVIDCNDMS	29048
HPV45	E2	9	67	PINISKSA	29049
HPV45	E2	10	66	PPINISKSA	29050
HPV45	E2	9	360	QISVGYMTI	29051
HPV45	E2	8	35	QISYWQLI	29052
HPV45	E2	10	35	QISYWQLRL	29053
HPV45	E2	9	218	QIVRQLQHA	29054
HPV45	E2	8	40	QLIRLENA	29055
HPV45	E2	9	40	QLIRLENAI	29056
HPV45	E2	10	40	QLIRLENAIL	29057
HPV45	E2	11	40	QLIRLENAILF	29058
HPV45	E2	8	82	QMALKGLA	29059
HPV45	E2	8	63	QVVPPPI	29060
HPV45	E2	8	43	RLENAILF	29061
HPV45	E2	10	43	RLENAILFTA	29062
HPV45	E2	9	309	RLRKYADHY	29063
HPV45	E2	9	13	RLSALQDKI	29064
HPV45	E2	10	13	RLSALQDKIL	29065
HPV45	E2	10	263	RVNTHVHNPL	29066
HPV45	E2	11	263	RVNTHVHNPLI	29067
HPV45	E2	10	142	SIYYITETGI	29068
HPV45	E2	11	142	SIYYITETGIW	29069
HPV45	E2	9	302	SLKCLRYRL	29070

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E2	8	9	SLSERLSA	29071
HPV45	E2	9	9	SLSERLSAL	29072
HPV45	E2	10	205	SMCSTSDDTV	29073
HPV45	E2	11	113	SQCFKKGGKTV	29074
HPV45	E2	8	34	SQISYWQL	29075
HPV45	E2	9	34	SQISYWQLI	29076
HPV45	E2	11	34	SQISYWQLIRL	29077
HPV45	E2	9	235	SVGTPKPHI	29078
HPV45	E2	8	358	SVQISVGY	29079
HPV45	E2	9	358	SVQISVGYM	29080
HPV45	E2	11	358	SVQISVGYMTI	29081
HPV45	E2	8	354	TIPNSVQI	29082
HPV45	E2	10	354	TIPNSVQISV	29083
HPV45	E2	9	99	TLQDTCEEL	29084
HPV45	E2	10	99	TLQDTCEELW	29085
HPV45	E2	10	5	TPKESLSERL	29086
HPV45	E2	10	238	TPKPIHIQTPA	29087
HPV45	E2	10	217	TQIVRQLQHA	29088
HPV45	E2	8	213	TVSATQIV	29089
HPV45	E2	11	213	TVSATQIVRQL	29090
HPV45	E2	8	337	TVTYNSEV	29091
HPV45	E2	8	199	VIDCNDMS	29092
HPV45	E2	11	65	VPPINISKSKA	29093
HPV45	E2	10	176	VQFKSECEKY	29094
HPV45	E2	8	359	VQISVGYM	29095
HPV45	E2	10	359	VQISVGYMTI	29096
HPV45	E2	9	344	VQRNTFLDV	29097
HPV45	E2	10	344	VQRNTFLDVV	29098
HPV45	E2	8	193	VQYGGNVI	29099
HPV45	E2	8	352	VVTIPNSV	29100
HPV45	E2	10	352	VVTIPNSVQI	29101
HPV45	E2	8	138	VVWDSIYY	29102
HPV45	E2	9	138	VVWDSIYYI	29103
HPV45	E2	9	39	WQLIRLENA	29104
HPV45	E2	10	39	WQLIRLENAI	29105
HPV45	E2	11	39	WQLIRLENAIL	29106
HPV45	E2	9	166	YIKDGDITY	29107
HPV45	E2	10	166	YIKDGDITYY	29108
HPV45	E2	11	166	YIKDGDITYYV	29109
HPV45	E2	8	145	YITETGIW	29110
HPV45	E2	11	175	YVQFKSECEKY	29111
HPV45	E2	8	137	YVWDSIY	29112
HPV45	E2	9	137	YVWDSIYY	29113
HPV45	E2	10	137	YVWDSIYYI	29114
HPV45	E6	11	59	CIAYAACIKCI	29115
HPV45	E6	8	68	CIDFYRI	29116

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E6	10	24	SLQDVSIACV	29163
IIPV45	E6	11	24	SLQDVSIACVY	29164
HPV45	E6	10	84	SVYGETLEKI	29165
HPV45	E6	10	89	TLEKITNTEL	29166
HPV45	E6	11	89	TLEKITNTELY	29167
HPV45	E6	8	38	TLERTEVY	29168
HPV45	E6	10	38	TLERTEVYQF	29169
HPV45	E6	11	38	TLERTEVYQFA	29170
HPV45	E6	10	8	TORPYKL PDL	29171
HPV45	E6	8	45	YQFAFKDL	29172
HPV45	E6	9	45	YQFAFKDLF	29173
HPV45	E6	10	45	YQFAFKDLFI	29174
HPV45	E6	11	45	YQFAFKDLFIV	29175
HPV45	E7	8	48	AQLPARRA	29176
HPV45	E7	10	64	CVCKCKDGR	29177
HPV45	E7	8	25	DLLCYEQ	29178
HPV45	E7	8	83	DLRTLQQL	29179
HPV45	E7	9	83	DLRTLQQLF	29180
HPV45	E7	10	83	DLRTLQQLFL	29181
HPV45	E7	8	22	DPVDLLCY	29182
HPV45	E7	11	22	DPVDLLCYEQ	29183
HPV45	E7	8	20	ELDPVDLL	29184
HPV45	E7	10	20	ELDPVDLLCY	29185
HPV45	E7	8	74	ELTVESSA	29186
HPV45	E7	11	74	ELTVESSADDL	29187
IIPV45	E7	9	16	EPQNELDPV	29188
HPV45	E7	11	16	EPQNELDPVDL	29189
HPV45	E7	8	56	EPQRHKIL	29190
HPV45	E7	10	56	EPQRHKILCV	29191
HPV45	E7	8	91	FLSTLSFV	29192
HPV45	E7	11	91	FLSTLSFVCPW	29193
HPV45	E7	9	3	GPRATLQEI	29194
HPV45	E7	10	3	GPRATLQEIV	29195
HPV45	E7	11	3	GPRATLQEIVL	29196
HPV45	E7	9	44	GVSHIAQLPA	29197
HPV45	E7	8	14	HLEPQNEL	29198
HPV45	E7	11	14	HLEPQNELDPV	29199
HPV45	E7	11	11	IVLHLEPQNEL	29200
HPV45	E7	8	8	LQEIVLHL	29201
HPV45	E7	9	87	LQQLFLSTL	29202
HPV45	E7	11	87	LQQLFLSTLSF	29203
HPV45	E7	8	17	PQNELDPV	29204
HPV45	E7	10	17	PQNELDPVDL	29205
HPV45	E7	11	17	PQNELDPVDLL	29206
IIPV45	E7	9	57	PQRIHKILCV	29207
HPV45	E7	10	23	PVDLLCYEQ	29208

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	E7	9	89	QLFLSTLSF	29209
HPV45	E7	10	89	QLFLSTLSFV	29210
HPV45	E7	8	88	QQFLSTL	29211
HPV45	E7	10	88	QQFLSTLSF	29212
HPV45	E7	11	88	QQFLSTLSFV	29213
HPV45	E7	10	72	RIELTVESSA	29214
HPV45	E7	9	7	TLQEIVLHL	29215
HPV45	E7	10	86	TLQQFLSTL	29216
HPV45	E7	8	94	TLSFVCPW	29217
HPV45	E7	10	94	TLSFVCPWCA	29218
HPV45	E7	9	76	TVESSADDL	29219
HPV45	E7	10	12	VLHLEPQNEL	29220
HPV45	L1	11	191	AIGEIHWAKGTL	29221
HPV45	L1	8	103	ALPDPNKF	29222
HPV45	L1	10	103	ALPDPNKFGL	29223
HPV45	L1	10	28	ALWRPSDSTV	29224
HPV45	L1	11	28	ALWRPSDSTVY	29225
HPV45	L1	8	345	AQGHNNGI	29226
HPV45	L1	10	345	AQGHNNGICW	29227
HPV45	L1	11	205	AQLQPGDCPPL	29228
HPV45	L1	11	164	AVITQDVDRNV	29229
HPV45	L1	8	88	AVPKVSAY	29230
HPV45	L1	10	88	AVPKVSAYQY	29231
HPV45	L1	8	184	CILGCVPA	29232
HPV45	L1	9	184	CILGCVPAI	29233
HPV45	L1	8	276	CLRREQLF	29234
HPV45	L1	9	276	CLRREQLFA	29235
HPV45	L1	10	212	CPPELKNTI	29236
HPV45	L1	11	212	CPPELKNTII	29237
HPV45	L1	10	252	CQSICKYPDY	29238
HPV45	L1	11	252	CQSICKYPDYL	29239
HPV45	L1	9	188	CVPAIGEHW	29240
HPV45	L1	10	188	CVPAIGEHW	29241
HPV45	L1	11	318	CVYSPSPSGSI	29242
HPV45	L1	9	250	DICQSICKY	29243
HPV45	L1	11	488	DLQYPLGRKF	29244
HPV45	L1	10	480	DLKEKFSSDL	29245
HPV45	L1	8	401	DLQIFQL	29246
HPV45	L1	11	401	DLQIFQLCTI	29247
HPV45	L1	9	301	DLYIKGTS	29248
HPV45	L1	11	301	DLYIKGTSANM	29249
HPV45	L1	9	226	DMVDTGYGA	29250
HPV45	L1	10	226	DMVDTGYGAM	29251
HPV45	L1	8	386	DPTKFKHY	29252
HPV45	L1	8	469	DPYDKLKF	29253
HPV45	L1	9	469	DPYDKLKF	29254

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	11	469	DPYDKLKFWTV	29255
HPV45	L1	8	267	DPYGDSMF	29256
HPV45	L1	9	267	DPYGDSMF	29257
HPV45	L1	11	267	DPYGDSMFCL	29258
HPV45	L1	9	490	DQYPLGRKF	29259
HPV45	L1	10	490	DQYPLGRKFL	29260
HPV45	L1	11	490	DQYPLGRKFLV	29261
HPV45	L1	8	169	DVRDNVSV	29262
HPV45	L1	10	169	DVRDNVSVDY	29263
HPV45	L1	8	133	EIGRGQPL	29264
HPV45	L1	10	133	EIGRGQPLGI	29265
HPV45	L1	8	280	EQLFARHF	29266
HPV45	L1	9	280	EQLFARHFW	29267
HPV45	L1	9	416	EVMSYIHSM	29268
HPV45	L1	10	246	EVPLDICQSI	29269
HPV45	L1	8	404	FIFQLCTI	29270
HPV45	L1	10	404	FIFQLCTITL	29271
HPV45	L1	8	14	FLKNVNVF	29272
HPV45	L1	10	14	FLKNVNVFPI	29273
HPV45	L1	11	14	FLKNVNVPIF	29274
HPV45	L1	8	21	FPIFLQMA	29275
HPV45	L1	9	21	FPIFLQMAL	29276
HPV45	L1	10	21	FPIFLQMALW	29277
HPV45	L1	8	406	FQLCTITL	29278
HPV45	L1	10	406	FQLCTITLA	29279
HPV45	L1	8	351	GICWHNQL	29280
HPV45	L1	9	351	GICWHNQLF	29281
HPV45	L1	10	351	GICWHNQLFV	29282
HPV45	L1	9	141	GIGLSGHPF	29283
HPV45	L1	10	141	GIGLSGHPFY	29284
HPV45	L1	9	10	GIHFLKNV	29285
HPV45	L1	11	10	GIHFLKNVNV	29286
HPV45	L1	8	111	GLPDSITY	29287
HPV45	L1	8	503	GLRRRPTI	29288
HPV45	L1	8	143	GLSGHPFY	29289
HPV45	L1	11	143	GLSGHPFYNKL	29290
HPV45	L1	10	131	GMEIGRGQPL	29291
HPV45	L1	8	511	GPRKRPA	29292
HPV45	L1	8	137	GQPLIGL	29293
HPV45	L1	11	292	GVMGDTVPTDL	29294
HPV45	L1	10	435	GVPPPTTSL	29295
HPV45	L1	11	435	GVPPPTTSLV	29296
HPV45	L1	9	396	HVEEYDLQF	29297
HPV45	L1	10	396	HVEEYDLQFI	29298
HPV45	L1	11	396	HVEEYDLQFIF	29299
HPV45	L1	8	221	IIEDGDMV	29300

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	9	12	IIFLKNVNV	29301
HPV45	L1	10	12	IIFLKNVNVF	29302
HPV45	L1	8	11	IIFLKNV	29303
HPV45	L1	10	11	IIFLKNVNV	29304
HPV45	L1	11	11	IIFLKNVNVF	29305
HPV45	L1	8	5	IIYGHGII	29306
HPV45	L1	9	5	IIYGHGIII	29307
HPV45	L1	10	5	IIYGHGIIIF	29308
HPV45	L1	11	5	IIYGHGIIIFL	29309
HPV45	L1	9	428	ILENWNFGV	29310
HPV45	L1	8	185	ILGCVPAI	29311
HPV45	L1	8	152	KLDDTESA	29312
HPV45	L1	10	152	KLDDTESAHA	29313
HPV45	L1	11	152	KLDDTESAHAA	29314
HPV45	L1	9	473	KLKFWTVDL	29315
HPV45	L1	8	338	KPYWLHKA	29316
HPV45	L1	9	86	KQAVPKVSA	29317
HPV45	L1	10	86	KQAVPKVSAY	29318
HPV45	L1	8	467	KQDPYDKL	29319
HPV45	L1	10	467	KQDPYDKLKF	29320
HPV45	L1	11	467	KQDPYDKLKFW	29321
HPV45	L1	8	179	KOTQLCIL	29322
HPV45	L1	11	179	KOTQLCILGCV	29323
HPV45	L1	9	91	KVSAYQYRV	29324
HPV45	L1	10	91	KVSAYQYRVF	29325
HPV45	L1	8	68	LLTVGNPY	29326
HPV45	L1	9	68	LLTVGNPYF	29327
HPV45	L1	11	68	LLTVGNPYFRV	29328
HPV45	L1	9	104	LDPNKFGL	29329
HPV45	L1	9	39	LPPSVARV	29330
HPV45	L1	10	39	LPPSVARVV	29331
HPV45	L1	8	240	LQDTKCEV	29332
HPV45	L1	10	240	LQDTKCEVPL	29333
HPV45	L1	10	402	LQFIFQLCTI	29334
HPV45	L1	8	262	LQMSADPY	29335
HPV45	L1	9	207	LQPGDCPPL	29336
HPV45	L1	11	207	LQPGDCPPLEL	29337
HPV45	L1	8	444	LVDTYRFV	29338
HPV45	L1	11	444	LVDTYRFVQSV	29339
HPV45	L1	8	125	LVWACVGM	29340
HPV45	L1	10	125	LVWACVGM EI	29341
HPV45	L1	8	227	MVDTGYGA	29342
HPV45	L1	9	227	MVDTGYGAM	29343
HPV45	L1	11	227	MVDTGYGAMDF	29344
HPV45	L1	8	4	NIYGHGI	29345
HPV45	L1	9	4	NIYGHGII	29346

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	10	4	NIYGHGIII	29347
HPV45	L1	11	4	NIYGHGHIF	29348
HPV45	L1	10	310	NMRETPGSCV	29349
HPV45	L1	11	310	NMRETPGSCVY	29350
HPV45	L1	8	119	NPETQRLV	29351
HPV45	L1	9	119	NPETQRLVW	29352
HPV45	L1	10	119	NPETQRLVWA	29353
HPV45	L1	11	73	NPYFRVVPSPA	29354
HPV45	L1	8	356	NQLFVTVV	29355
HPV45	L1	9	19	NVFPFLQM	29356
HPV45	L1	10	19	NVFPFLQMA	29357
HPV45	L1	11	19	NVFPFLQMAL	29358
HPV45	L1	8	17	NVNVFPIF	29359
HPV45	L1	9	17	NVNVFPIEL	29360
HPV45	L1	11	17	NVNVFPFLQM	29361
HPV45	L1	11	173	NVSDYKQTQL	29362
HPV45	L1	8	22	PIFLQMAL	29363
HPV45	L1	9	22	PIFLQMALW	29364
HPV45	L1	8	248	PLDICQSI	29365
HPV45	L1	11	248	PLDICQSICKY	29366
HPV45	L1	8	214	PLELKNTI	29367
HPV45	L1	9	214	PLELKNTII	29368
HPV45	L1	11	139	PLGIGLSGHPF	29369
HPV45	L1	8	493	PLGRKFLV	29370
HPV45	L1	10	493	PLGRKFLVQA	29371
HPV45	L1	8	464	PPEKQDPY	29372
HPV45	L1	11	464	PPEKQDPYDKL	29373
HPV45	L1	9	213	PPELKNTI	29374
HPV45	L1	10	213	PPELKNTII	29375
HPV45	L1	8	437	PPPTTSL	29376
HPV45	L1	9	437	PPPTTSLV	29377
HPV45	L1	8	40	PPPSVARV	29378
HPV45	L1	9	40	PPPSVARVV	29379
HPV45	L1	8	438	PPPTTSLV	29380
HPV45	L1	11	438	PPPTTSLVDTY	29381
HPV45	L1	8	41	PPSVARVV	29382
HPV45	L1	10	439	PPTTSLVDTY	29383
HPV45	L1	11	380	PVPNTYDPTKF	29384
HPV45	L1	8	182	QLCILGCV	29385
HPV45	L1	10	182	QLCILGCVPA	29386
HPV45	L1	11	182	QLCILGCVPAI	29387
HPV45	L1	9	407	QLCTITLTA	29388
HPV45	L1	11	407	QLCTITLTAEV	29389
HPV45	L1	8	281	QLFARHEW	29390
HPV45	L1	11	281	QLFARHFWNRA	29391
HPV45	L1	8	334	QLENKPYW	29392

Seq. Id. No.

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	9	334	QLFNKPYWL	29393
HPV45	L1	10	206	QLQPGDCPPL	29394
HPV45	L1	11	263	QMSADPYGDSM	29395
HPV45	L1	8	208	QPGDCPPL	29396
HPV45	L1	10	208	QPGDCPPL	29397
HPV45	L1	9	67	RLLTVGNPY	29398
HPV45	L1	10	67	RLLTVGNPYF	29399
HPV45	L1	9	124	RLVWACVGM	29400
HPV45	L1	11	124	RLVWACVGM	29401
HPV45	L1	9	515	RPAASTSTA	29402
HPV45	L1	8	525	RPAKRVRI	29403
HPV45	L1	8	31	RPSDSTVY	29404
HPV45	L1	9	31	RPSDSTVYL	29405
HPV45	L1	11	507	RPTIGPRKRPA	29406
HPV45	L1	10	101	RVALPDPNKF	29407
HPV45	L1	8	46	RVVNTDDY	29408
HPV45	L1	9	46	RVVNTDDYV	29409
HPV45	L1	8	254	SICKYPDY	29410
HPV45	L1	9	254	SICKYPDYL	29411
HPV45	L1	11	254	SICKYPDYLQM	29412
HPV45	L1	11	58	SIFYHAGSSRL	29413
HPV45	L1	8	427	SILENWNF	29414
HPV45	L1	10	427	SILENWNFGV	29415
HPV45	L1	9	327	SITTSDSQL	29416
HPV45	L1	10	327	SITTSDSQLF	29417
HPV45	L1	8	443	SLVDITYRF	29418
HPV45	L1	9	443	SLVDITYRFV	29419
HPV45	L1	11	272	SMFFCLRREQL	29420
HPV45	L1	10	423	SMNSSILENW	29421
HPV45	L1	8	321	SPSPSGSI	29422
HPV45	L1	8	333	SQLFNKPY	29423
HPV45	L1	9	333	SQLFNKPYW	29424
HPV45	L1	10	333	SQLFNKPYWL	29425
HPV45	L1	11	43	SVARVVNTDDY	29426
HPV45	L1	9	175	SVDYKQTQL	29427
HPV45	L1	11	175	SVDYKQTQLCI	29428
HPV45	L1	9	509	TIGPRKRPA	29429
HPV45	L1	10	509	TIGPRKRPA	29430
HPV45	L1	8	220	TIIEDGDM	29431
HPV45	L1	9	220	TIIEDGDMV	29432
HPV45	L1	8	410	TITLTAEV	29433
HPV45	L1	9	410	TITLTAEVM	29434
HPV45	L1	11	410	TITLTAEVMSY	29435
HPV45	L1	10	116	TIYNPETQRL	29436
HPV45	L1	11	116	TIYNPETQRLV	29437
HPV45	L1	10	372	TLCASTQNPV	29438

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	8	200	TLCKPAQL	29439
HPV45	L1	9	239	TLQDTKCEV	29440
HPV45	L1	11	239	TLQDTKCEVPL	29441
HPV45	L1	9	412	TLTAEVMSY	29442
HPV45	L1	10	412	TLTAEVMSYI	29443
HPV45	L1	9	463	TPPEKQDPY	29444
HPV45	L1	8	167	TQDVRDNV	29445
HPV45	L1	10	167	TQDVRDNVSV	29446
HPV45	L1	9	181	TQLCILGCV	29447
HPV45	L1	11	181	TQLCILGCVPA	29448
HPV45	L1	9	377	TQNPVPNTY	29449
HPV45	L1	9	122	TQRLVWACV	29450
HPV45	L1	11	122	TQRLVWACVGM	29451
HPV45	L1	8	478	TVDLKEKF	29452
HPV45	L1	9	70	TVGNPYFRV	29453
HPV45	L1	10	70	TVGNPYFRVV	29454
HPV45	L1	8	297	TVPTDLYI	29455
HPV45	L1	11	361	TVVDTTRSTNL	29456
HPV45	L1	9	36	TVYLPSPSV	29457
HPV45	L1	10	36	TVYLPSPSVA	29458
HPV45	L1	10	165	VITQDVRDNV	29459
HPV45	L1	10	293	VMGDTVPTDL	29460
HPV45	L1	11	293	VMGDTVPTDLY	29461
HPV45	L1	8	417	VMSYIHSM	29462
HPV45	L1	8	189	VPAIGEHW	29463
HPV45	L1	9	189	VPAIGEHW	29464
HPV45	L1	9	89	VPKVSAYQY	29465
HPV45	L1	11	89	VPKVSAYQYRV	29466
HPV45	L1	9	247	VPLDICQSI	29467
HPV45	L1	10	381	VPNTYDPTKF	29468
HPV45	L1	9	436	VPPPTTSL	29469
HPV45	L1	10	436	VPPPTTSLV	29470
HPV45	L1	10	79	VPSGAGNKQA	29471
HPV45	L1	11	79	VPSGAGNKQAV	29472
HPV45	L1	11	500	VQAGLRRRPTI	29473
HPV45	L1	10	362	VVDTRSTNL	29474
HPV45	L1	8	47	VVNTDDYV	29475
HPV45	L1	11	78	VVPSGAGNKQA	29476
HPV45	L1	9	420	YIHSMNSSI	29477
HPV45	L1	10	420	YIHSMNSSIL	29478
HPV45	L1	9	303	YIKGTSANM	29479
HPV45	L1	8	38	YLPPPSVA	29480
HPV45	L1	10	38	YLPPPSVARV	29481
HPV45	L1	11	38	YLPPPSVARVV	29482
HPV45	L1	9	261	YLOMSADPY	29483
HPV45	L1	9	258	YPDYLQMSA	29484

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B62 Supermolif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L1	8	492	YPLGRKKFL	29485
HPV45	L1	9	492	YPLGRKFLV	29486
HPV45	L1	11	492	YPLGRKKFLVQA	29487
HPV45	L1	8	95	YQYRVERV	29488
HPV45	L1	9	95	YQYRVERVA	29489
HPV45	L1	10	95	YQYRVERVAL	29490
HPV45	L1	8	53	YVSRISIF	29491
HPV45	L1	9	53	YVSRISIFY	29492
HPV45	L1	11	53	YVSRISIFYHA	29493
HPV45	L2	9	286	ALSSRRGTV	29494
HPV45	L2	11	286	ALSSRRGTVR	29495
HPV45	L2	9	139	AVLDITPTV	29496
HPV45	L2	9	27	CPPDVINKV	29497
HPV45	L2	10	405	DILPSHTPM	29498
HPV45	L2	11	405	DILPSHTPMW	29499
HPV45	L2	9	278	DIIRLHRPA	29500
HPV45	L2	10	278	DIIRLHRPAL	29501
HPV45	L2	11	322	DISPIAATEEI	29502
HPV45	L2	9	142	DITPTVDSV	29503
HPV45	L2	11	142	DITPTVDSVSI	29504
HPV45	L2	9	345	DLFDVYADF	29505
HPV45	L2	8	100	DPSIVTLV	29506
HPV45	L2	9	83	DVGPTRPV	29507
HPV45	L2	10	83	DVGPTRPVV	29508
HPV45	L2	11	83	DVGPTRPVVI	29509
HPV45	L2	11	30	DVINKVEGTTL	29510
HPV45	L2	10	397	DVPIYTGPI	29511
HPV45	L2	11	397	DVPIYTGPII	29512
HPV45	L2	10	348	DVYADFPPA	29513
HPV45	L2	8	331	EIELQPLI	29514
HPV45	L2	10	331	EIELQPLISA	29515
HPV45	L2	8	194	EIPLOTFA	29516
HPV45	L2	11	129	EITSSGTTTPA	29517
HPV45	L2	8	333	ELQPLISA	29518
HPV45	L2	8	208	EPISSTPL	29519
HPV45	L2	11	208	EPISSTPLPTV	29520
HPV45	L2	9	257	EPLDTLSF	29521
HPV45	L2	11	266	EPTSNVPSDF	29522
HPV45	L2	10	94	EPVGPTDPSI	29523
HPV45	L2	11	94	EPVGPTDPSIV	29524
HPV45	L2	8	169	EVPTGEV	29525
HPV45	L2	8	175	EVSGNIFV	29526
HPV45	L2	8	241	FLTHPSSL	29527
HPV45	L2	9	241	FLTHPSSLV	29528
HPV45	L2	11	241	FLTHPSSLVTF	29529
HPV45	L2	11	276	FMDIIRLIRPA	29530

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	8	445	FPKKRRKI	29531
HPV45	L2	10	445	FPKKRRKRIY	29532
HPV45	L2	11	445	FPKKRRKRIPYF	29533
HPV45	L2	9	51	GIFLGGLGI	29534
HPV45	L2	8	430	GIHGTQYY	29535
HPV45	L2	9	430	GIHGTQYYL	29536
HPV45	L2	10	430	GIHGTQYYLW	29537
HPV45	L2	8	223	GPRLYSRA	29538
HPV45	L2	8	97	GPTDPSIV	29539
HPV45	L2	10	97	GPTDPSIVTL	29540
HPV45	L2	11	97	GPTDPSIVTLV	29541
HPV45	L2	8	85	GPTRPPVV	29542
HPV45	L2	9	85	GPTRPPVVI	29543
HPV45	L2	8	244	HPSSLVTF	29544
HPV45	L2	10	167	IIIEVPQTGEV	29545
HPV45	L2	9	406	IILPSHTPM	29546
HPV45	L2	10	406	IILPSHTPMW	29547
HPV45	L2	8	279	IIRLHRPA	29548
HPV45	L2	9	279	IIRLHRPAL	29549
HPV45	L2	8	407	IILPSHTPM	29550
HPV45	L2	9	407	IILPSHTPMW	29551
HPV45	L2	9	44	ILQWSSLGI	29552
HPV45	L2	10	44	ILQWSSLGIF	29553
HPV45	L2	11	44	ILQWSSLGIFL	29554
HPV45	L2	9	452	IPYFFADGF	29555
HPV45	L2	10	452	IPYFFADGFV	29556
HPV45	L2	11	452	IPYFFADGFVA	29557
HPV45	L2	10	103	IVTLVEDSSV	29558
HPV45	L2	11	103	IVTLVEDSSV	29559
HPV45	L2	8	43	KILQWSSL	29560
HPV45	L2	10	43	KILQWSSLGI	29561
HPV45	L2	11	43	KILQWSSLGIF	29562
HPV45	L2	9	311	KQIGGRVHF	29563
HPV45	L2	10	311	KQIGGRVHFY	29564
HPV45	L2	10	22	KQSGTCPPDV	29565
HPV45	L2	11	22	KQSGTCPPDVI	29566
HPV45	L2	8	34	KVEGTTLA	29567
HPV45	L2	11	34	KVEGTTLADKI	29568
HPV45	L2	10	337	LISATNDSDL	29569
HPV45	L2	11	337	LISATNDSDLF	29570
HPV45	L2	8	408	LPSHTPMW	29571
HPV45	L2	8	45	LQWSSLGI	29572
HPV45	L2	9	45	LQWSSLGIF	29573
HPV45	L2	10	45	LQWSSLGIFL	29574
HPV45	L2	8	106	LVEDSSV	29575
HPV45	L2	9	106	LVEDSSVVA	29576

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	8	248	LVTFDNPA	29577
HPV45	L2	9	248	LVTFDNPAY	29578
HPV45	L2	9	377	MPSTAASSY	29579
HPV45	L2	9	159	NPAFSDPSI	29580
HPV45	L2	10	159	NPAFSDPSII	29581
HPV45	L2	11	253	NPAYEPLDTTL	29582
HPV45	L2	11	231	NOQVRVSTSQF	29583
HPV45	L2	8	270	NVPDSDFM	29584
HPV45	L2	10	270	NVPDSDFMDI	29585
HPV45	L2	11	270	NVPDSDFMDII	29586
HPV45	L2	9	387	NVTVPLTSA	29587
HPV45	L2	10	387	NVTVPLTSAW	29588
HPV45	L2	8	325	PIAATEEI	29589
HPV45	L2	10	325	PIAATEEIEL	29590
HPV45	L2	10	209	PISSTPLPTV	29591
HPV45	L2	8	399	PIYTGPD	29592
HPV45	L2	9	399	PIYTGPDII	29593
HPV45	L2	10	399	PIYTGPDIIIL	29594
HPV45	L2	8	258	PLDTLSF	29595
HPV45	L2	9	73	PLGGRSNTV	29596
HPV45	L2	10	73	PLGGRSNTVV	29597
HPV45	L2	11	336	PLISATNDSDL	29598
HPV45	L2	8	214	PLPTVRRV	29599
HPV45	L2	8	391	PLTSAWDV	29600
HPV45	L2	10	391	PLTSAWDVPI	29601
HPV45	L2	11	391	PLTSAWDVPIY	29602
HPV45	L2	11	413	PMWPSTPTNA	29603
HPV45	L2	10	355	PPASTTPSTI	29604
HPV45	L2	8	28	PPDVINKV	29605
HPV45	L2	11	354	PPASTTPSTI	29606
HPV45	L2	8	89	PPVVIEWP	29607
HPV45	L2	10	171	PQTGEVSGNI	29608
HPV45	L2	11	171	PQTGEVSGNIF	29609
HPV45	L2	9	95	PVGPTDPSI	29610
HPV45	L2	10	95	PVGPTDPSIV	29611
HPV45	L2	11	118	PVPTFTGTSGF	29612
HPV45	L2	8	312	QIGGRVHF	29613
HPV45	L2	9	312	QIGGRVHFY	29614
HPV45	L2	10	232	QQVRVSTSQF	29615
HPV45	L2	11	232	QQVRVSTSQFL	29616
HPV45	L2	9	233	QVRVSTSQF	29617
HPV45	L2	10	233	QVRVSTSQFL	29618
HPV45	L2	10	451	RIPYFFADGF	29619
HPV45	L2	11	451	RIPYFFADGFV	29620
HPV45	L2	8	298	RLGQRATM	29621
HPV45	L2	9	298	RLGQRATMF	29622

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	10	225	RLYSRANQQV	29623
HPV45	L2	11	284	RPALSSRRGTV	29624
HPV45	L2	9	88	RPPVVEIPV	29625
HPV45	L2	8	316	RVHFYHDI	29626
HPV45	L2	11	316	RVHFYHDISI	29627
HPV45	L2	8	220	RVRGPRLY	29628
HPV45	L2	11	220	RVRGPRLYSRA	29629
HPV45	L2	8	235	RVSTSQFL	29630
HPV45	L2	11	166	SHIEVPQTGEV	29631
HPV45	L2	11	151	SISSTFTNPA	29632
HPV45	L2	11	102	SIVTLVEDSSV	29633
HPV45	L2	9	49	SLGIFLGGI	29634
HPV45	L2	11	49	SLGIFLGGIGI	29635
HPV45	L2	8	374	SLTMPSTA	29636
HPV45	L2	9	374	SLTMPSTAA	29637
HPV45	L2	9	247	SLVTFDNPA	29638
HPV45	L2	10	247	SLVTFDNPAY	29639
HPV45	L2	9	324	SPIAATEEI	29640
HPV45	L2	11	324	SPIAATEEIEL	29641
HPV45	L2	10	419	SPTNASTTTY	29642
HPV45	L2	11	419	SPTNASTTTYI	29643
HPV45	L2	10	239	SQFLTHPSSL	29644
HPV45	L2	11	239	SQFLTHPSSLV	29645
HPV45	L2	9	149	SVSISSTSF	29646
HPV45	L2	9	111	SVVASGAPV	29647
HPV45	L2	8	363	TIHKSFTY	29648
HPV45	L2	11	363	TIHKSFTYPKY	29649
HPV45	L2	9	39	TLADKILQW	29650
HPV45	L2	10	262	TLSEPTSNV	29651
HPV45	L2	8	105	TLVEDSSV	29652
HPV45	L2	9	105	TLVEDSSVV	29653
HPV45	L2	10	105	TLVEDSSVVA	29654
HPV45	L2	10	304	TMFTRSQKI	29655
HPV45	L2	10	376	TMPSTAASSY	29656
HPV45	L2	11	137	TPAVLDITPTV	29657
HPV45	L2	9	213	TPLPTVRRV	29658
HPV45	L2	9	360	TPSTIIHKSF	29659
HPV45	L2	11	360	TPSTIIHKSFTY	29660
HPV45	L2	9	184	TPTSGSHGY	29661
HPV45	L2	9	144	TPTVDSVSI	29662
HPV45	L2	8	434	TQYYLWPW	29663
HPV45	L2	9	434	TQYYLWPWY	29664
HPV45	L2	10	434	TQYYLWPWYY	29665
HPV45	L2	11	434	TQYYLWPWYYY	29666
HPV45	L2	8	389	TVPLTSAW	29667
HPV45	L2	10	389	TVPLTSAWDV	29668

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV45	L2	11	293	TVRFSRLGORA	29669
HPV45	L2	10	217	TVRRVRGPRRL	29670
HPV45	L2	11	217	TVRRVRGPRLY	29671
HPV45	L2	10	31	VINKVEGTLL	29672
HPV45	L2	11	31	VINKVEGTTLA	29673
HPV45	L2	8	140	VLDIHTPV	29674
HPV45	L2	11	140	VLDIHTPTVDSV	29675
HPV45	L2	9	271	VPDSDFMDI	29676
HPV45	L2	10	271	VPDSDFMDII	29677
HPV45	L2	9	398	VPIYTGPI	29678
HPV45	L2	10	398	VPIYTGPII	29679
HPV45	L2	11	398	VPIYTGPIIL	29680
HPV45	L2	10	72	VPLGGRSNTV	29681
HPV45	L2	11	72	VPLGGRSNTVV	29682
HPV45	L2	9	390	VPLTSAWDV	29683
HPV45	L2	11	390	VPLTSAWDVPI	29684
HPV45	L2	11	170	VPQTGEVSGNI	29685
HPV45	L2	10	119	VPTFTGTSGF	29686
HPV45	L2	8	112	VVASGAPV	29687
HPV45	L2	11	112	VVASGAPVPTF	29688
HPV45	L2	11	81	VVDVGPIRPPV	29689
HPV45	L2	9	415	WPSTSPINA	29690
HPV45	L2	9	428	YIGHGTQY	29691
HPV45	L2	10	428	YIGHGTQYY	29692
HPV45	L2	11	428	YIGHGTQYYL	29693
HPV45	L2	8	437	YLWPWYYY	29694
HPV45	L2	9	437	YLWPWYYYF	29695
HPV45	L2	8	370	YPKYSLTM	29696
HPV45	L2	11	71	YVPLGGRSNTV	29697
HPV56	E2	8	15	AEVQIAL	29698
HPV56	E2	11	15	AEVQIALES	29699
HPV56	E2	9	21	ALESSTI	29700
HPV56	E2	10	21	ALESSTIY	29701
HPV56	E2	9	4	CLQVCKAKA	29702
HPV56	E2	9	71	CMQYVAWKY	29703
HPV56	E2	10	71	CMQYVAWKYL	29704
HPV56	E2	11	71	CMQYVAWKYIY	29705
HPV56	E2	11	138	CPDSVSSTCRY	29706
HPV56	E2	8	204	CVTTTHI	29707
HPV56	E2	8	263	DVTSTYHW	29708
HPV56	E2	11	43	ELWLTEPKKCF	29709
HPV56	E2	10	243	EPNRLKCCRY	29710
HPV56	E2	9	128	EVHMENESI	29711
HPV56	E2	10	128	EVHMENESIY	29712
HPV56	E2	9	17	EVQIALES	29713
HPV56	E2	9	294	FLSHVKIPV	29714

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E2	10	294	FLSHVKIPVV	29715
HPV56	E2	11	294	FLSHVKIPVVY	29716
HPV56	E2	8	254	FQKYKTLF	29717
HPV56	E2	9	254	FQKYKTLFV	29718
HPV56	E2	11	254	FQKYKTLFVDV	29719
HPV56	E2	8	261	FVDVTSTY	29720
HPV56	E2	10	261	FVDVTSTYHW	29721
HPV56	E2	8	57	GQHIEVWF	29722
HPV56	E2	8	94	GVDYRGIY	29723
HPV56	E2	9	94	GVDYRGIYY	29724
HPV56	E2	10	94	GVDYRGIYV	29725
HPV56	E2	9	239	HLKGEPNRL	29726
HPV56	E2	8	130	HMENESIY	29727
HPV56	E2	9	229	HPGDKTTPV	29728
HPV56	E2	10	229	HPGDKTTPVV	29729
HPV56	E2	8	297	HVKIPVVY	29730
HPV56	E2	10	297	HVKIPVVYRL	29731
HPV56	E2	11	297	HVKIPVVYRLV	29732
HPV56	E2	8	300	IPVVYRLV	29733
HPV56	E2	9	300	IPVVYRLVW	29734
HPV56	E2	8	299	KIPVVYRL	29735
HPV56	E2	9	299	KIPVVYRLV	29736
HPV56	E2	10	299	KIPVVYRLVW	29737
HPV56	E2	8	90	KVCSGVDY	29738
HPV56	E2	11	90	KVCSGVDYRGI	29739
HPV56	E2	8	5	LQVCKAKA	29740
HPV56	E2	11	5	LQVCKAKACSA	29741
HPV56	E2	8	72	MQYVAWKY	29742
HPV56	E2	9	72	MQYVAWKYI	29743
HPV56	E2	10	72	MQYVAWKYIY	29744
HPV56	E2	11	72	MQYVAWKYIYY	29745
HPV56	E2	10	1	MVPCLVCKA	29746
HPV56	E2	8	149	NVSPVETV	29747
HPV56	E2	11	149	NVSPVETVNEY	29748
HPV56	E2	8	152	PVETVNEY	29749
HPV56	E2	8	301	PVVYRLVW	29750
HPV56	E2	11	19	QIALESSTTI	29751
HPV56	E2	10	6	QVCKAKACSA	29752
HPV56	E2	11	6	QVCKAKACSAI	29753
HPV56	E2	9	246	RLKCCRYRF	29754
HPV56	E2	8	182	RPGKRRL	29755
HPV56	E2	9	186	RPLRESEF	29756
HPV56	E2	8	135	SIYCPDSV	29757
HPV56	E2	9	151	SPVETVNEY	29758
HPV56	E2	8	171	SVGNQDAA	29759
HPV56	E2	9	171	SVGNQDAAV	29760

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E2	8	141	SVSSTCRY	29761
HPV56	E2	10	141	SVSSTCRYNV	29762
HPV56	E2	8	28	TIYNNEEW	29763
HPV56	E2	10	28	TIYNNEEWTL	29764
HPV56	E2	10	259	TLFVDVTSTY	29765
HPV56	E2	9	36	TLRDTCEEL	29766
HPV56	E2	10	36	TLRDTCEELW	29767
HPV56	E2	11	36	TLRDTCEELWL	29768
HPV56	E2	10	289	TQNSFLSHV	29769
HPV56	E2	9	2	VPCLQVCKA	29770
HPV56	E2	11	2	VPCLQVCKAKA	29771
HPV56	E2	8	18	VQIALES	29772
HPV56	E2	11	237	VVHLKGEPRNL	29773
HPV56	E2	9	45	WLTEPKKCF	29774
HPV56	E2	8	88	WQKVCSTV	29775
HPV56	E2	10	88	WQKVCSTVDY	29776
HPV56	E2	10	79	YIYNGDCGW	29777
HPV56	E2	8	74	YVAWKYIY	29778
HPV56	E2	9	74	YVAWKYIYY	29779
HPV56	E2	9	102	YVHDGHKTY	29780
HPV56	E2	10	102	YVHDGHKTTY	29781
HPV56	E6	8	64	AVCRVCLL	29782
HPV56	E6	9	64	AVCRVCLLF	29783
HPV56	E6	10	64	AVCRVCLLFY	29784
HPV56	E6	8	69	CLLFYSKV	29785
HPV56	E6	11	69	CLLFYSKVRKY	29786
HPV56	E6	8	33	CVYCKKEL	29787
HPV56	E6	11	33	CVYCKKELTRA	29788
HPV56	E6	8	28	DLRLSCVY	29789
HPV56	E6	9	23	EIPLIDLRL	29790
HPV56	E6	10	52	ELKLVYRDDF	29791
HPV56	E6	8	39	ELTRAEVY	29792
HPV56	E6	10	39	ELTRAEVYNF	29793
HPV56	E6	11	39	ELTRAEVYNFA	29794
HPV56	E6	8	20	EVLEIPLI	29795
HPV56	E6	10	20	EVLEIPLIDL	29796
HPV56	E6	10	44	EVYNFACTEL	29797
HPV56	E6	8	61	FPYAVCRV	29798
HPV56	E6	10	61	FPYAVCRVCL	29799
HPV56	E6	11	61	FPYAVCRVCLL	29800
HPV56	E6	8	17	HLSEVLEI	29801
HPV56	E6	10	17	HLSEVLEIPL	29802
HPV56	E6	11	17	HLSEVLEIPLI	29803
HPV56	E6	8	24	IPLIDLRL	29804
HPV56	E6	11	24	IPLIDLRLSCV	29805
HPV56	E6	8	54	KLVRDDF	29806

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E6	10	54	KLVRDDFPY	29807
HPV56	E6	11	54	KLVRDDFPYA	29808
HPV56	E6	8	97	KQLCDLLI	29809
HPV56	E6	11	97	KQLCDLLRCY	29810
HPV56	E6	11	118	KQLHCDRKRFR	29811
HPV56	E6	8	75	KVRKYRY	29812
HPV56	E6	10	75	KVRKYRYDY	29813
HPV56	E6	11	130	L/AHGWTSCL	29814
HPV56	E6	9	26	LIDRLSCV	29815
HPV56	E6	10	26	LIDRLSCVY	29816
HPV56	E6	11	103	LIRCYRCQSPL	29817
HPV56	E6	10	70	LLFYSKVRKY	29818
HPV56	E6	9	55	LVYRDDFPY	29819
HPV56	E6	10	55	LVYRDDFPYA	29820
HPV56	E6	11	55	LVYRDDFPYAV	29821
HPV56	E6	9	7	NPQERPSL	29822
HPV56	E6	10	25	PLIDRLSCV	29823
HPV56	E6	11	25	PLIDRLSCVY	29824
HPV56	E6	9	112	PLTPEEKQL	29825
HPV56	E6	8	8	PQERPSL	29826
HPV56	E6	11	8	PQERPSLHHL	29827
HPV56	E6	10	98	QLCDLLRCY	29828
HPV56	E6	10	119	QLHCDRKRFR	29829
HPV56	E6	11	30	RLSCVYCKKEL	29830
HPV56	E6	8	11	RPRSLHHL	29831
HPV56	E6	11	11	RPRSLHHLSEV	29832
HPV56	E6	10	67	RVCLLFYSKV	29833
HPV56	E6	10	93	SITKKQLCDL	29834
HPV56	E6	11	93	SITKKQLCDLL	29835
HPV56	E6	8	14	SLHHLSEV	29836
HPV56	E6	9	14	SLHHLSEVL	29837
HPV56	E6	11	14	SLHHLSEVLEI	29838
HPV56	E6	10	111	SPLTPEEKQL	29839
HPV56	E6	10	85	SVYGATLESI	29840
HPV56	E6	10	90	TLESITKKQL	29841
HPV56	E6	9	21	VLEIPLIDL	29842
HPV56	E6	11	21	VLEIPLIDLRL	29843
HPV56	E7	8	93	ALTVTCPL	29844
HPV56	E7	10	93	ALTVTCPLCA	29845
HPV56	E7	9	75	DIQSTKEDL	29846
HPV56	E7	11	75	DIQSTKEDLRV	29847
HPV56	E7	8	22	DLQNEQL	29848
HPV56	E7	8	82	DLRVVQQL	29849
HPV56	E7	9	82	DLRVVQQLL	29850
HPV56	E7	10	82	DLRVVQQLLM	29851
HPV56	E7	10	20	EIDLQNEQL	29852

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	E7	8	14	ELTPQTEI	29853
HPV56	E7	10	14	ELTPQTEIDL	29854
HPV56	E7	9	42	HLQRPQQA	29855
HPV56	E7	9	62	IIVPCCECKF	29856
HPV56	E7	10	62	IIVPCCECKFV	29857
HPV56	E7	11	62	IIVPCCECKFVV	29858
HPV56	E7	8	76	IQSTKEDL	29859
HPV56	E7	10	76	IQSTKEDLRV	29860
HPV56	E7	11	76	IQSTKEDLRVV	29861
HPV56	E7	8	54	KQHICYLI	29862
HPV56	E7	10	54	KQHICYLIHV	29863
HPV56	E7	8	4	KVPTLQDV	29864
HPV56	E7	9	4	KVPTLQDVV	29865
HPV56	E7	10	4	KVPTLQDVL	29866
HPV56	E7	11	60	LIHVPCCECKF	29867
HPV56	E7	8	89	LLMGALTV	29868
HPV56	E7	11	90	LMGALTVTCPL	29869
HPV56	E7	8	8	LQDVVLEL	29870
HPV56	E7	8	43	LQRPQQA	29871
HPV56	E7	11	43	LQRPQQAQQA	29872
HPV56	E7	11	73	QLDIQSTKEDL	29873
HPV56	E7	9	88	QLLMGALTV	29874
HPV56	E7	8	87	QQLLMGAL	29875
HPV56	E7	10	87	QQLLMGALTV	29876
HPV56	E7	8	46	RPQQAQQA	29877
HPV56	E7	9	51	ROAKQHICY	29878
HPV56	E7	10	51	ROAKQHICYL	29879
HPV56	E7	11	51	ROAKQHICYLI	29880
HPV56	E7	8	84	RVVQQLLM	29881
HPV56	E7	10	84	RVVQQLLMGA	29882
HPV56	E7	11	84	RVVQQLLMGAL	29883
HPV56	E7	9	7	TLQDVVLEL	29884
HPV56	E7	8	16	TPQTEIDL	29885
HPV56	E7	8	95	TVTCPLCA	29886
HPV56	E7	10	12	VLELTPQTEI	29887
HPV56	E7	8	63	VPCCECKF	29888
HPV56	E7	9	63	VPCCECKFV	29889
HPV56	E7	10	63	VPCCECKFVV	29890
HPV56	E7	8	5	VPTLQDVV	29891
HPV56	E7	9	5	VPTLQDVL	29892
HPV56	E7	11	5	VPTLQDVLLEL	29893
HPV56	E7	8	86	VQQLLMGA	29894
HPV56	E7	9	86	VQQLLMGAL	29895
HPV56	E7	11	86	VQQLLMGALTV	29896
HPV56	E7	11	11	VLELTPQTEI	29897
HPV56	E7	9	85	VVQQLLMGA	29898

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No
HPV56	E7	10	85	VVQQLMGAL	29899
HPV56	L1	10	198	AMGEHWTKGA	29900
HPV56	L1	11	198	AMGEHWTKGAV	29901
HPV56	L1	9	521	APTSTSTPA	29902
HPV56	L1	8	350	AQGHNNGI	29903
HPV56	L1	10	350	AQGHNNGICW	29904
HPV56	L1	8	338	AQLFNKPY	29905
HPV56	L1	9	338	AQLFNKPYW	29906
HPV56	L1	10	338	AQLFNKPYWL	29907
HPV56	L1	10	512	AVATSKKRSA	29908
HPV56	L1	8	207	AVCKSTQV	29909
HPV56	L1	9	79	AVGIPIYYSV	29910
HPV56	L1	8	26	AVNVFPIF	29911
HPV56	L1	9	26	AVNVFPIFL	29912
HPV56	L1	11	26	AVNVFPIFLQM	29913
HPV56	L1	8	19	CIFLDVGA	29914
HPV56	L1	9	19	CIFLDVGAV	29915
HPV56	L1	11	19	CIFLDVGAVNV	29916
HPV56	L1	8	191	CIVGCTPA	29917
HPV56	L1	9	191	CIVGCTPAM	29918
HPV56	L1	11	219	CPPLALINTPI	29919
HPV56	L1	9	257	DIVQSTCKY	29920
HPV56	L1	11	491	DLDQFPLGRKF	29921
HPV56	L1	9	233	DMIDTGFGA	29922
HPV56	L1	10	233	DMIDTGFGAM	29923
HPV56	L1	8	472	DPLAKYKF	29924
HPV56	L1	9	472	DPLAKYKFW	29925
HPV56	L1	11	472	DPLAKYKFWDV	29926
HPV56	L1	8	11	DPPLHYGL	29927
HPV56	L1	10	11	DPPLHYGLCI	29928
HPV56	L1	11	11	DPPLHYGLCIF	29929
HPV56	L1	8	128	DQERLVWA	29930
HPV56	L1	10	128	DQERLVWACV	29931
HPV56	L1	9	493	DQFPLGRKF	29932
HPV56	L1	10	493	DQFPLGRKFL	29933
HPV56	L1	11	493	DQFPLGRKFLM	29934
HPV56	L1	8	23	DVGAVNVF	29935
HPV56	L1	10	23	DVGAVNVFPI	29936
HPV56	L1	11	23	DVGAVNVFPIF	29937
HPV56	L1	8	481	DVNLQDSF	29938
HPV56	L1	8	404	EIQFVFOL	29939
HPV56	L1	11	404	EIQFVFQLCKI	29940
HPV56	L1	8	318	EPPSSVY	29941
HPV56	L1	9	318	EPPSSVYV	29942
HPV56	L1	10	318	EPPSSVYVA	29943
HPV56	L1	8	287	EQLFARHY	29944

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Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	9	287	EQLFARHYF	29945
HPV56	L1	8	383	EQLSKYDA	29946
HPV56	L1	11	383	EQLSKYDARKI	29947
HPV56	L1	11	464	EQPTEKQDPL	29948
HPV56	L1	8	140	EVGRGQPL	29949
HPV56	L1	10	140	EVGRGQPLGA	29950
HPV56	L1	9	419	EV MAYLHNM	29951
HPV56	L1	11	419	EV MAYLHNMNA	29952
HPV56	L1	9	21	FLDV GAVNV	29953
HPV56	L1	10	21	FLDV GAVNVF	29954
HPV56	L1	8	30	FPIFLQMA	29955
HPV56	L1	10	30	FPIFLQMATW	29956
HPV56	L1	8	495	FPLGRKFL	29957
HPV56	L1	9	495	FPLGRKFLM	29958
HPV56	L1	11	495	FPLGRKFLMQL	29959
HPV56	L1	8	409	FQLCKITL	29960
HPV56	L1	10	409	FQLCKITLSA	29961
HPV56	L1	8	407	FVFQLCKI	29962
HPV56	L1	10	407	FVFQLCKITL	29963
HPV56	L1	8	356	GICWGNQL	29964
HPV56	L1	9	356	GICWGNQLF	29965
HPV56	L1	10	356	GICWGNQLFV	29966
HPV56	L1	8	17	GLCIFLDV	29967
HPV56	L1	10	17	GLCIFLDVGA	29968
HPV56	L1	11	17	GLCIFLDVGAV	29969
HPV56	L1	10	138	GLEVGRGQPL	29970
HPV56	L1	8	118	GLPDTNIY	29971
HPV56	L1	8	150	GLSGHPLF	29972
HPV56	L1	11	150	GLSGHPLFNRL	29973
HPV56	L1	10	438	GLSPPVATSL	29974
HPV56	L1	8	144	GQPLGAGL	29975
HPV56	L1	9	399	HVEEYELQF	29976
HPV56	L1	10	399	HVEEYELQFV	29977
HPV56	L1	11	399	HVEEYELQFVF	29978
HPV56	L1	9	96	IPKVSAYQY	29979
HPV56	L1	11	96	IPKVSAYQYRV	29980
HPV56	L1	8	192	IVGCTPAM	29981
HPV56	L1	8	258	IVQSTCKY	29982
HPV56	L1	11	258	IVQSTCKYPDY	29983
HPV56	L1	9	392	KINQYLRHV	29984
HPV56	L1	8	413	KITLSAEV	29985
HPV56	L1	9	413	KITLSAEVM	29986
HPV56	L1	10	413	KITLSAEVMA	29987
HPV56	L1	11	413	KITLSAEVMAY	29988
HPV56	L1	11	270	KMSADAYGDSM	29989
HPV56	L1	8	343	KPYWLQRA	29990

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	8	470	KQDPLAKY	29991
HPV56	L1	10	470	KQDPLAKYKF	29992
HPV56	L1	11	470	KQDPLAKYKFW	29993
HPV56	L1	8	186	KQTQLCIV	29994
HPV56	L1	8	300	KVGETIPA	29995
HPV56	L1	10	300	KVGETIPAEAL	29996
HPV56	L1	11	300	KVGETIPAEALY	29997
HPV56	L1	8	245	KVLQESKA	29998
HPV56	L1	10	245	KVLQESKAEV	29999
HPV56	L1	9	98	KVSAYQYRV	30000
HPV56	L1	10	98	KVSAYQYRVF	30001
HPV56	L1	8	55	KVVATDSY	30002
HPV56	L1	9	55	KVVATDSYV	30003
HPV56	L1	9	45	KVYLPPTPV	30004
HPV56	L1	11	224	LINTPIEDGDM	30005
HPV56	L1	8	77	LLAVGHPY	30006
HPV56	L1	9	77	LLAVGHPYV	30007
HPV56	L1	11	77	LLAVGHPYYSV	30008
HPV56	L1	9	431	LLEDWNIGL	30009
HPV56	L1	11	502	LMQLGTRSKPA	30010
HPV56	L1	9	111	LPDPNKFGL	30011
HPV56	L1	9	48	LPPTPVSKV	30012
HPV56	L1	10	48	LPPTPVSKVV	30013
HPV56	L1	11	48	LPPTPVSKVVA	30014
HPV56	L1	9	484	LQDSFSTD	30015
HPV56	L1	8	247	LQESKAEV	30016
HPV56	L1	10	247	LQESKAEVPL	30017
HPV56	L1	10	405	LQFVFQLCKI	30018
HPV56	L1	11	347	LQRAQGHNGI	30019
HPV56	L1	8	132	LVWACVGL	30020
HPV56	L1	10	132	LVWACVGLEV	30021
HPV56	L1	8	234	MIDTGFGA	30022
HPV56	L1	9	234	MIDTGFGAM	30023
HPV56	L1	11	234	MIDTGFGAMD	30024
HPV56	L1	8	333	MITSEAOQL	30025
HPV56	L1	9	333	MITSEAOQLF	30026
HPV56	L1	8	2	MLPMMYIY	30027
HPV56	L1	8	1	MLPMMYI	30028
HPV56	L1	9	1	MLPMMYIY	30029
HPV56	L1	10	5	MMYIYRDPL	30030
HPV56	L1	10	503	MLGTRSKPA	30031
HPV56	L1	11	503	MLGTRSKPAV	30032
HPV56	L1	8	436	NIGLSPPV	30033
HPV56	L1	9	436	NIGLSPVA	30034
HPV56	L1	8	95	NIPKVSAY	30035
HPV56	L1	10	95	NIPKVSAYQY	30036

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	11	180	NISVDGKQTQL	30037
HPV56	L1	10	123	NIYNPDQERL	30038
HPV56	L1	11	123	NIYNPDQERLV	30039
HPV56	L1	8	167	NLANNNVI	30040
HPV56	L1	8	430	NLLEDWNI	30041
HPV56	L1	10	430	NLLEDWNIGL	30042
HPV56	L1	10	483	NLQDSFSTDL	30043
HPV56	L1	10	426	NMNANLLEDW	30044
HPV56	L1	11	375	NMTISTATEQL	30045
HPV56	L1	8	126	NPQERLV	30046
HPV56	L1	9	126	NPQERLVW	30047
HPV56	L1	10	126	NPQERLVWA	30048
HPV56	L1	8	361	NQLFVTVV	30049
HPV56	L1	10	394	NQYLHVVEEY	30050
HPV56	L1	9	28	NVFPFLQM	30051
HPV56	L1	10	28	NVFPFLQMA	30052
HPV56	L1	10	172	NVIEDSRDNI	30053
HPV56	L1	8	228	PIEDGDM	30054
HPV56	L1	9	31	PIFLQMATW	30055
HPV56	L1	8	473	PLAKYKFW	30056
HPV56	L1	10	473	PLAKYKFWDV	30057
HPV56	L1	9	221	PLALINTPI	30058
HPV56	L1	11	255	PLDIVQSTCKY	30059
HPV56	L1	11	146	PLGAGLSGHPL	30060
HPV56	L1	8	496	PLGRKFLM	30061
HPV56	L1	10	496	PLGRKFLMQL	30062
HPV56	L1	8	13	PLHYGLCI	30063
HPV56	L1	9	13	PLHYGLCIF	30064
HPV56	L1	10	13	PLHYGLCIFL	30065
HPV56	L1	11	4	PMMYIYRDPPL	30066
HPV56	L1	10	220	PPLALINTPI	30067
HPV56	L1	9	12	PPLHYGLCI	30068
HPV56	L1	10	12	PPLHYGLCIF	30069
HPV56	L1	11	12	PPLHYGLCIFL	30070
HPV56	L1	8	319	PPSSVVV	30071
HPV56	L1	9	319	PPSSVVVA	30072
HPV56	L1	8	320	PPSSVVVA	30073
HPV56	L1	9	466	PPTEKQDPL	30074
HPV56	L1	10	466	PPTEKQDPLA	30075
HPV56	L1	8	49	PPTPVSKV	30076
HPV56	L1	9	49	PPTPVSKVV	30077
HPV56	L1	10	49	PPTPVSKVVA	30078
HPV56	L1	11	441	PPVATSLSDKY	30079
HPV56	L1	10	442	PVATSLSDKY	30080
HPV56	L1	11	52	PVSKVVATDSY	30081
HPV56	L1	10	189	QLCIVGCTPA	30082

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B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	11	189	QLCIVGCTPAM	30083
HPV56	L1	9	410	QLCKITLSA	30084
HPV56	L1	11	410	QLCKITLSAEV	30085
HPV56	L1	8	288	QLFARIHYF	30086
HPV56	L1	11	288	QLFARIHYFNRA	30087
HPV56	L1	8	339	QLFNKPYW	30088
HPV56	L1	9	339	QLFNKPYWL	30089
HPV56	L1	9	504	QLGTRSKPA	30090
HPV56	L1	10	504	QLGTRSKPAV	30091
HPV56	L1	11	504	QLGTRSKPAVA	30092
HPV56	L1	10	384	QLSKYDARKI	30093
HPV56	L1	10	465	QPTEKQDPL	30094
HPV56	L1	11	465	QPTEKQDPLA	30095
HPV56	L1	10	213	QVTTGDCPPL	30096
HPV56	L1	11	213	QVTTGDCPPLA	30097
HPV56	L1	10	159	RLDDTESSNL	30098
HPV56	L1	11	159	RLDDTESSNLA	30099
HPV56	L1	9	76	RLAVAGHPY	30100
HPV56	L1	10	76	RLAVAGHPYV	30101
HPV56	L1	8	110	RLDPNKF	30102
HPV56	L1	10	110	RLDPNKFGL	30103
HPV56	L1	9	131	RLVWACVGL	30104
HPV56	L1	11	131	RLVWACVGLEV	30105
HPV56	L1	8	40	RPSENKVY	30106
HPV56	L1	9	40	RPSENKVYL	30107
HPV56	L1	10	108	RVRLDPNKF	30108
HPV56	L1	11	67	SIFYHAGSSRL	30109
HPV56	L1	8	446	SLEDKYRY	30110
HPV56	L1	9	446	SLEDKYRYV	30111
HPV56	L1	9	332	SMTSEAQL	30112
HPV56	L1	10	332	SMTSEAQLF	30113
HPV56	L1	11	279	SMWFYLRREQL	30114
HPV56	L1	8	440	SPPVATSL	30115
HPV56	L1	9	182	SVDGKQTQL	30116
HPV56	L1	11	182	SVDGKQTQLCI	30117
HPV56	L1	11	86	SVTKDNTKTN	30118
HPV56	L1	11	323	SVVATPSGSM	30119
HPV56	L1	8	304	TIPAEVLY	30120
HPV56	L1	9	377	TISTATEQL	30121
HPV56	L1	8	415	TLAEVMA	30122
HPV56	L1	9	415	TLAEVMAY	30123
HPV56	L1	10	415	TLAEVMAYL	30124
HPV56	L1	8	196	TPAMGEHW	30125
HPV56	L1	8	227	TPIEDGDM	30126
HPV56	L1	9	227	TPIEDGDMI	30127
HPV56	L1	11	328	TPSGSMITSEA	30128

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L1	8	51	TPVSKVVA	30129
HPV56	L1	11	188	TQLCIVGCTPA	30130
HPV56	L1	11	212	TQVTTGDCPPL	30131
HPV56	L1	11	366	TVVDITRSTNM	30132
HPV56	L1	9	173	VIEDSRDNI	30133
HPV56	L1	11	173	VIEDSRDNISV	30134
HPV56	L1	9	246	VLOESKAEV	30135
HPV56	L1	11	246	VLOESKAEVPL	30136
HPV56	L1	8	420	VMAYLHNM	30137
HPV56	L1	10	420	VMAYLHNMNA	30138
HPV56	L1	10	259	VQSTCKYPDY	30139
HPV56	L1	11	259	VQSTCKYPDYL	30140
HPV56	L1	8	56	VVATDSYV	30141
HPV56	L1	10	367	VVDITRSTNM	30142
HPV56	L1	8	7	YIYRDPPL	30143
HPV56	L1	10	7	YIYRDPPLHY	30144
HPV56	L1	9	423	YLHNMNANL	30145
HPV56	L1	10	423	YLHNMNANLL	30146
HPV56	L1	8	268	YLKMSADA	30147
HPV56	L1	9	268	YLKMSADAY	30148
HPV56	L1	10	47	YLPPTPVSKV	30149
HPV56	L1	11	47	YLPPTPVSKVV	30150
HPV56	L1	8	396	YLRHVEEY	30151
HPV56	L1	10	396	YLRHVEEYEL	30152
HPV56	L1	8	283	YLRREQLF	30153
HPV56	L1	9	283	YLRREQLFA	30154
HPV56	L1	9	265	YPDYLKMSA	30155
HPV56	L1	11	265	YPDYLKMSADA	30156
HPV56	L1	8	102	YQYRVFRV	30157
HPV56	L1	10	102	YQYRVFRVRL	30158
HPV56	L1	9	325	YVATPSGSM	30159
HPV56	L1	10	325	YVATPSGSMI	30160
HPV56	L1	8	62	YVKRTSIF	30161
HPV56	L1	9	62	YVKRTSIFY	30162
HPV56	L1	11	62	YVKRTSIFYHA	30163
HPV56	L2	8	438	ALWPVYFF	30164
HPV56	L2	9	271	APDPDFMNI	30165
HPV56	L2	10	271	APDPDFMNI	30166
HPV56	L2	11	271	APDPDFMNI	30167
HPV56	L2	9	358	APGLSSQSV	30168
HPV56	L2	10	358	APGLSSQSV	30169
HPV56	L2	11	391	APLGNVWETPF	30170
HPV56	L2	11	170	APQTGEVSGNI	30171
HPV56	L2	8	223	APRLYRKA	30172
HPV56	L2	9	223	APRLYRKAF	30173
HPV56	L2	8	327	AQAEIEIM	30174

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	11	327	AQAEIEMQPL	30175
HPV56	L2	10	201	AVHSGSGTEPI	30176
HPV56	L2	9	27	CPEDVVVNI	30177
HPV56	L2	8	322	DISPIAQA	30178
HPV56	L2	11	322	DISPIAQAEI	30179
HPV56	L2	9	142	DITPTSSTV	30180
HPV56	L2	11	142	DITPTSSTVHV	30181
HPV56	L2	11	406	DIVLPTGPSTW	30182
HPV56	L2	10	349	DIYANIDDEA	30183
HPV56	L2	9	238	DPAFLDRPA	30184
HPV56	L2	11	238	DPAFLDRPATL	30185
HPV56	L2	8	273	DPDFMNIV	30186
HPV56	L2	9	273	DPDFMNIVA	30187
HPV56	L2	10	273	DPDFMNIVAL	30188
HPV56	L2	8	100	DPSIVTLV	30189
HPV56	L2	8	425	DVTHIDVVI	30190
HPV56	L2	9	83	DVTPARPI	30191
HPV56	L2	10	83	DVTPARPIIV	30192
HPV56	L2	11	83	DVTPARPIVV	30193
HPV56	L2	11	30	DVVNKIEQKTW	30194
HPV56	L2	9	429	DVYIQGSF	30195
HPV56	L2	10	429	DVYIQGSFA	30196
HPV56	L2	11	429	DVYIQGSFAL	30197
HPV56	L2	8	331	EIEMQPLL	30198
HPV56	L2	10	331	EIEMQPLLSA	30199
HPV56	L2	8	194	EIPMQTFA	30200
HPV56	L2	9	194	EIPMQTFV	30201
HPV56	L2	11	129	EITSSSTTTPA	30202
HPV56	L2	8	333	EMQPLLSA	30203
HPV56	L2	8	208	EPISSTPI	30204
HPV56	L2	11	208	EPISSTPIPGF	30205
HPV56	L2	9	36	EQKTWADKI	30206
HPV56	L2	10	36	EQKTWADKIL	30207
HPV56	L2	8	175	EVSGNILI	30208
HPV56	L2	9	162	FIDPPVIEA	30209
HPV56	L2	8	241	FLDRPATL	30210
HPV56	L2	9	241	FLDRPATLV	30211
HPV56	L2	11	241	FLDRPATLVSA	30212
HPV56	L2	11	276	FMNIVALHRPA	30213
HPV56	L2	10	231	FQQVKVTDPA	30214
HPV56	L2	11	231	FQQVKVTDPAF	30215
HPV56	L2	9	418	FVQSPYDV	30216
HPV56	L2	8	188	GIHSYEEI	30217
HPV56	L2	10	188	GIHSYEEIPM	30218
HPV56	L2	11	118	GIPNFTGSGF	30219
HPV56	L2	8	360	GLSSQSV	30220

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	9	346	GLYDIYANI	30221
HPV56	L2	8	412	GPSTWPFV	30222
HPV56	L2	8	97	GPTDPSIV	30223
HPV56	L2	10	97	GPTDPSIVTL	30224
HPV56	L2	11	97	GPTDPSIVTLV	30225
HPV56	L2	8	269	GVAPDPDF	30226
HPV56	L2	9	269	GVAPDPDFM	30227
HPV56	L2	11	269	GVAPDPDFMNI	30228
HPV56	L2	11	293	GVRFSRLGRKA	30229
HPV56	L2	8	156	HITNPLI	30230
HPV56	L2	9	372	HLPIKPSTL	30231
HPV56	L2	11	372	HLPIKPSTLSF	30232
HPV56	L2	11	151	HVSSSTHITNPL	30233
HPV56	L2	10	180	ILISTPTSGI	30234
HPV56	L2	8	44	ILQWGSLF	30235
HPV56	L2	10	44	ILQWGSLFTY	30236
HPV56	L2	11	44	ILQWGSLFTYF	30237
HPV56	L2	8	215	IPGFRRIA	30238
HPV56	L2	9	215	IPGFRRIAA	30239
HPV56	L2	8	195	IPMQTFV	30240
HPV56	L2	10	119	IPNFTGSGGF	30241
HPV56	L2	10	453	IPYFFADGDV	30242
HPV56	L2	11	453	IPYFFADGDVA	30243
HPV56	L2	8	432	IQGSSFAL	30244
HPV56	L2	9	432	IQGSSFALW	30245
HPV56	L2	11	432	IQGSSFALWPV	30246
HPV56	L2	9	305	IQTRRGTI	30247
HPV56	L2	11	305	IQTRRGTIQIGA	30248
HPV56	L2	8	279	IVALHRPA	30249
HPV56	L2	9	279	IVALHRPAF	30250
HPV56	L2	11	81	IVDVTARPPI	30251
HPV56	L2	10	407	IVLPTGPSTW	30252
HPV56	L2	10	103	IVTLVEESSV	30253
HPV56	L2	11	103	IVTLVEESSVI	30254
HPV56	L2	8	34	KIEQKTTWA	30255
HPV56	L2	11	34	KIEQKTTWADKI	30256
HPV56	L2	8	43	KILQWGSL	30257
HPV56	L2	9	43	KILQWGSLF	30258
HPV56	L2	11	43	KILQWGSLFTY	30259
HPV56	L2	10	22	KLSGTCEPV	30260
HPV56	L2	11	22	KLSGTCEPVDV	30261
HPV56	L2	8	376	KPSTLSEA	30262
HPV56	L2	8	235	KVTDPAFL	30263
HPV56	L2	9	181	LISTPTSGI	30264
HPV56	L2	8	337	LLSANNF	30265
HPV56	L2	11	337	LLSANNFDGL	30266

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	8	373	LPIKPSTL	30267
HPV56	L2	10	373	LPIKPSTLSF	30268
HPV56	L2	11	373	LPIKPSTLSFA	30269
HPV56	L2	8	409	LPTGPSTW	30270
HPV56	L2	10	409	LPTGPSTWPF	30271
HPV56	L2	11	409	LPTGPSTWPFV	30272
HPV56	L2	9	45	LQWGSIFTY	30273
HPV56	L2	10	45	LQWGSIFTYF	30274
HPV56	L2	8	106	LVEESSVI	30275
HPV56	L2	8	248	LVSADNPL	30276
HPV56	L2	8	248	LVSADNPLF	30277
HPV56	L2	9	248	LVSADNPLF	30278
HPV56	L2	11	334	MQPLLSANNSF	30279
HPV56	L2	9	353	NIDDEAPGL	30280
HPV56	L2	11	179	NILISTPTSGI	30281
HPV56	L2	9	278	NIVALHRPA	30282
HPV56	L2	10	278	NIVALHRPAF	30283
HPV56	L2	11	253	NPLFEGTDTSL	30284
HPV56	L2	9	159	NPLFIDPPV	30285
HPV56	L2	10	159	NPLFIDPPVI	30286
HPV56	L2	9	388	NVTAPLGNV	30287
HPV56	L2	10	388	NVTAPLGNVW	30288
HPV56	L2	8	395	NVWETPFY	30289
HPV56	L2	8	325	PIAQAEI	30290
HPV56	L2	10	325	PIAQAEIEM	30291
HPV56	L2	9	374	PIKPSTLSF	30292
HPV56	L2	10	374	PIKPSTLSFA	30293
HPV56	L2	8	214	PIPGFRR	30294
HPV56	L2	9	214	PIPGFRRIA	30295
HPV56	L2	10	214	PIPGFRRIAA	30296
HPV56	L2	10	209	PISSTPIPGF	30297
HPV56	L2	10	254	PLFEGTDTSL	30298
HPV56	L2	11	254	PLFEGTDTSLA	30299
HPV56	L2	8	160	PLFIDPPV	30300
HPV56	L2	9	160	PLFIDPPVI	30301
HPV56	L2	11	160	PLFIDPPVIEA	30302
HPV56	L2	10	392	PLGNVWETPF	30303
HPV56	L2	11	392	PLGNVWETPFY	30304
HPV56	L2	9	73	PLGSRPSTI	30305
HPV56	L2	10	73	PLGSRPSTIV	30306
HPV56	L2	9	336	PLLSANNSF	30307
HPV56	L2	8	89	PRIVVESV	30308
HPV56	L2	11	420	PQSPYDVTHDV	30309
HPV56	L2	10	171	PQTGEVSGNI	30310
HPV56	L2	11	171	PQTGEVSGNIL	30311
HPV56	L2	11	166	PVIEAPQTGEV	30312
HPV56	L2	8	312	QIGARVHH	

Table XIV
B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	9	312	QIGARVHYV	30313
HPV56	L2	10	312	QIGARVHYYY	30314
HPV56	L2	8	16	QLYKTCKL	30315
HPV56	L2	10	335	QPLLSANNSF	30316
HPV56	L2	9	232	QQVKVTDPA	30317
HPV56	L2	10	232	QQVKVTDPAF	30318
HPV56	L2	11	232	QQVKVTDPAFL	30319
HPV56	L2	8	233	QVKVTDPA	30320
HPV56	L2	9	233	QVKVTDPAF	30321
HPV56	L2	10	233	QVKVTDPAFL	30322
HPV56	L2	8	220	RIAAPRLY	30323
HPV56	L2	11	220	RIAAPRLYRKA	30324
HPV56	L2	11	452	RIPYFADGDV	30325
HPV56	L2	8	298	RLGRKATI	30326
HPV56	L2	10	225	RLYRKAFQOV	30327
HPV56	L2	11	284	RPAFTTRRGV	30328
HPV56	L2	8	244	RPATLVSA	30329
HPV56	L2	9	88	RPIVVESV	30330
HPV56	L2	8	77	RPSTIVDV	30331
HPV56	L2	11	77	RPSTIVDVTPA	30332
HPV56	L2	8	316	RVHYYYVDI	30333
HPV56	L2	11	316	RVHYYYDISPI	30334
HPV56	L2	11	102	SIVTLVESSV	30335
HPV56	L2	9	262	SLAFSPSGV	30336
HPV56	L2	10	262	SLAFSPSGVA	30337
HPV56	L2	9	49	SLFTYFGGL	30338
HPV56	L2	11	49	SLFTYFGGLGI	30339
HPV56	L2	9	324	SPIAQAEI	30340
HPV56	L2	11	324	SPIAQAEIEM	30341
HPV56	L2	11	266	SPSGVAPDPDF	30342
HPV56	L2	9	422	SPYDVTHDV	30343
HPV56	L2	10	422	SPYDVTHDVY	30344
HPV56	L2	11	422	SPYDVTHDVYI	30345
HPV56	L2	9	363	SQSVATPSA	30346
HPV56	L2	11	363	SQSVATPSAHL	30347
HPV56	L2	9	365	SVATPSAHL	30348
HPV56	L2	11	365	SVATPSAHLPI	30349
HPV56	L2	9	95	SVGPTDPSI	30350
HPV56	L2	10	95	SVGPTDPSIV	30351
HPV56	L2	9	111	SVIESGAGI	30352
HPV56	L2	10	304	TIQTRRGTOI	30353
HPV56	L2	8	80	TIVDVTPA	30354
HPV56	L2	11	379	TLSFASNTTNV	30355
HPV56	L2	8	105	TLVEESSV	30356
HPV56	L2	9	105	TLVEESSVI	30357
HPV56	L2	9	247	TLVSADNPL	30358

Table XIV

B62 Supermotif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	Seq. Id. No.
HPV56	L2	10	247	TLVSADNPLF	30359
HPV56	L2	8	85	TPARPIV	30360
HPV56	L2	9	85	TPARPIVV	30361
HPV56	L2	9	399	TPFYSGPDI	30362
HPV56	L2	10	399	TPFYSGPDIV	30363
HPV56	L2	11	399	TPFYSGPDIVL	30364
HPV56	L2	9	213	TPIPGFRR	30365
HPV56	L2	10	213	TPIPGFRRIA	30366
HPV56	L2	11	213	TPIPGFRRIAA	30367
HPV56	L2	8	368	TPSAHLPI	30368
HPV56	L2	9	184	TPTSGHSY	30369
HPV56	L2	9	144	TPTSSTVHV	30370
HPV56	L2	9	311	TQIGARVHY	30371
HPV56	L2	10	311	TQIGARVHY	30372
HPV56	L2	11	311	TQIGARVHY	30373
HPV56	L2	9	15	TQLYKTCKL	30374
HPV56	L2	9	149	TVHVSSTHI	30375
HPV56	L2	10	167	VIEAPQTGEV	30376
HPV56	L2	8	112	VIESGAGI	30377
HPV56	L2	11	112	VIESGAGIPNF	30378
HPV56	L2	11	140	VLDITPTSSTV	30379
HPV56	L2	9	408	VLPTGPSTW	30380
HPV56	L2	11	408	VLPTGPSTWPF	30381
HPV56	L2	10	72	VPLGSRPSTI	30382
HPV56	L2	11	72	VPLGSRPSTIV	30383
HPV56	L2	8	419	VPQSPYDV	30384
HPV56	L2	10	31	VVNKIEQKTW	30385
HPV56	L2	11	31	VVNKIEQKTWA	30386
HPV56	L2	9	416	WPFVPQSPY	30387
HPV56	L2	11	416	WPFVPQSPYDV	30388
HPV56	L2	8	431	YIQSSFA	30389
HPV56	L2	9	431	YIQSSFAL	30390
HPV56	L2	10	431	YIQSSFALW	30391
HPV56	L2	11	71	YVPLGSRPSTI	30392

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Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV16	E1	11	248	ADSIKTLQQY		30393
HPV16	E1	10	206	AMLAKFKELY		30394
HPV16	E1	8	524	ATVPCWNY		30395
HPV16	E1	9	404	DCATMCRHY		30396
HPV16	E1	10	522	DDATVPCWNY	0.0011	30397
HPV16	E1	9	371	DDSEIAYKY		30398
HPV16	E1	8	372	DSEIAYKY		30399
HPV16	E1	10	249	DSIKTLQQY		30400
HPV16	E1	10	356	ELSQMVGWAY		30401
HPV16	E1	9	152	ETETPCSQY		30402
HPV16	E1	9	594	FDENGPNVY		30403
HPV16	E1	8	127	FESEDSGY		30404
HPV16	E1	10	162	GGSGGGCSQY		30405
HPV16	E1	9	325	GISNISEVY		30406
HPV16	E1	10	272	GMVVLLLVRY		30407
HPV16	E1	9	163	GSGGGCSQY		30408
HPV16	E1	8	571	GTDSRWPY		30409
HPV16	E1	9	12	GTGCNGWFY		30410
HPV16	E1	11	568	INAGTDSRWPY	3.9000	30411
HPV16	E1	8	326	ISNISEVY		30412
HPV16	E1	9	369	IVDDSEIAY		30413
HPV16	E1	11	369	IVDDSEIAYKY		30414
HPV16	E1	11	323	KTGISNISEVY		30415
HPV16	E1	10	252	KTLLQQYCLY		30416
HPV16	E1	11	521	LDDATVPCWNY		30417
HPV16	E1	9	126	LFSEDSGY		30418
HPV16	E1	9	312	LRSTAAALY		30419
HPV16	E1	11	312	LRSTAAALYWY		30420
HPV16	E1	9	357	LSQMVQWAY		30421
HPV16	E1	11	48	LVDFIVNDNDY		30422
HPV16	E1	9	207	MLAKFKELY		30423
HPV16	E1	9	420	MSMSQWIKY		30424
HPV16	E1	10	593	PFDEGNPVY		30425
HPV16	E1	10	419	QMSMSQWIKY		30426
HPV16	E1	11	80	RDAVQVLKRRY		30427
HPV16	E1	11	150	RHETETPCSQY		30428
HPV16	E1	8	313	RSTAAALY		30429
HPV16	E1	10	313	RSTAAALYWY		30430
HPV16	E1	8	421	SMSQWIKY		30431
HPV16	E1	9	314	STAAALYWY		30432
HPV16	E1	8	315	TAAALYWY		30433
HPV16	E1	8	370	VDDSEIAY		30434
HPV16	E1	10	370	VDDSEIAYKY		30435
HPV16	E1	11	402	VKDCATMCRHY		30436
HPV16	E2	9	11	CQDKILTHY		30437
HPV16	E2	10	122	DGDICNTMHY		30438

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV16	E2	11	22	DSTDLRDHIDY		30439
HPV16	E2	8	80	ETIYNSQY		30440
HPV16	E2	8	171	FKDDAEKY		30441
HPV16	E2	11	293	GDANTLKCLRY		30442
HPV16	E2	10	328	HKSAIVTLTY		30443
HPV16	E2	9	35	HMRLECAIY		30444
HPV16	E2	10	35	HMRLECAIY		30445
HPV16	E2	9	329	KSAIVTLTY		30446
HPV16	E2	9	94	LQDVSLEVY		30447
HPV16	E2	11	77	LTLETIYNSQY		30448
HPV16	E2	8	296	NTLKCLRY		30449
HPV16	E2	10	106	PTGCIKIUGY		30450
HPV16	E2	8	151	QVDYYGLY		30451
HPV16	E2	9	151	QVDYYGLY		30452
HPV16	E2	8	37	RLECAIY		30453
HPV16	E2	10	23	STDLRDHIDY		30454
HPV16	E2	10	78	TLETIYNSQY		30455
HPV16	E2	11	128	TMHYTNWTHIY		30456
HPV16	E2	8	160	VHEGIRTY		30457
HPV16	E2	10	145	VTVVEGQVDY		30458
HPV16	E2	11	145	VTVVEGQVDY		30459
HPV16	E2	8	147	VVEGQVDY		30460
HPV16	E2	9	147	VVEGQVDY		30461
HPV16	E2	11	92	WTLQDVSLEVY		30462
HPV16	E2	8	131	YTNWTHIY		30463
HPV16	E5	11	53	AASAFRCFIVY		30464
HPV16	E5	10	54	ASAFRCFIVY		30465
HPV16	E6	11	51	DFAFRDLCIVY		30466
HPV16	E6	8	54	FRDLCIVY		30467
HPV16	E6	8	76	FYSKISEY		30468
HPV16	E6	11	76	FYSKISEYRHY		30469
HPV16	E6	8	92	GTTLEQQY	0.0006	30470
HPV16	E6	10	30	IHDHLECVY	0.0280	30471
HPV16	E6	9	80	ISEYRHYCY	0.3100	30472
HPV16	E6	8	79	KISEYRHY		30473
HPV16	E6	10	79	KISEYRHYCY	0.0090	30474
HPV16	E6	9	69	VCDKCLKFY	0.0017	30475
HPV16	E6	10	77	YSKISEYRHY	0.0150	30476
HPV16	E6	8	4	DTPTLHEY	0.0002	30477
HPV16	E7	8	18	ETDLYCY	0.0780	30478
HPV16	E7	10	43	GQAEPDRAHY		30479
HPV16	E7	10	2	IIGDPTLHEY	0.0030	30480
HPV16	E7	9	44	QAEPDRAHY	0.0210	30481
HPV16	E7	8	16	QPETDLY	0.0010	30482
HPV16	E7	10	16	QPETDLYCY	0.0330	30483
HPV16	L1	9	373	AISTSETTY		30484

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV16	L1	11	371	CAAISETTY		30485
HPV16	L1	10	251	CTSICKYPDY		30486
HPV16	L1	9	13	CYENDVNVY		30487
HPV16	L1	8	154	DTENASAY		30488
HPV16	L1	11	386	FKEYLRHIGEEY		30489
HPV16	L1	11	307	GSTANLASSNY		30490
HPV16	L1	8	374	ISTSETTY		30491
HPV16	L1	11	11	ITCYENDVNVY		30492
HPV16	L1	10	407	ITLTADVMTY		30493
HPV16	L1	8	463	KEDPLKKY		30494
HPV16	L1	11	151	KLDDTENASAY		30495
HPV16	L1	10	152	LDDTENASAY		30496
HPV16	L1	8	68	LLAVGHYP		30497
HPV16	L1	8	31	LFSEATVY		30498
HPV16	L1	8	409	L'TADVMTY		30499
HPV16	L1	9	169	NRECISMDY		30500
HPV16	L1	9	462	PKEDPLKKY		30501
HPV16	L1	11	247	PLDICTSICKY		30502
HPV16	L1	11	43	PVSKVVSTDEY		30503
HPV16	L1	10	328	SDAQIFNKPY		30504
HPV16	L1	10	308	STANLASSNY		30505
HPV16	L1	11	50	TDEYVARTNIY		30506
HPV16	L1	11	327	TSDAQIFNKPY		30507
HPV16	L1	9	252	TSICKYPDY		30508
HPV16	L1	11	65	TSRLAVGHYP		30509
HPV16	L1	11	379	TTYKNTNFKEY		30510
HPV16	L1	10	293	VGENVPDDLY		30511
HPV16	L1	10	44	VSKVVSTDEY		30512
HPV16	L1	8	268	YGDSLFFY		30513
HPV16	L1	8	53	YVARTNIY		30514
HPV16	L1	9	53	YVARTNIY		30515
HPV16	L2	10	443	AGDFYLIHPSY		30516
HPV16	L2	11	443	AGDFYLIHPSY		30517
HPV16	L2	9	259	GIDVDNTLY		30518
HPV16	L2	10	317	GKSIGAKVIHY		30519
HPV16	L2	11	317	GKSIGAKVIHY		30520
HPV16	L2	10	63	GSGTGGRTGY		30521
HPV16	L2	11	218	GSRPVARLGLY		30522
HPV16	L2	8	65	GTGGRTGY		30523
HPV16	L2	8	440	IADAGDFY		30524
HPV16	L2	8	41	IADQILQY		30525
HPV16	L2	8	320	IGAKVIHY		30526
HPV16	L2	9	320	IGAKVIHY		30527
HPV16	L2	9	439	IADAGDFY		30528
HPV16	L2	10	243	ITPTKLITY		30529
HPV16	L2	8	250	ITYDNPAY		30530

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV16	L2	9	11	KRASATQLY		30531
HPV16	L2	9	318	KSIGAKVHY		30532
HPV16	L2	10	318	KSIGAKVHY		30533
HPV16	L2	11	318	KSIGAKVHY		30534
HPV16	L2	10	39	KTIADQILQY		30535
HPV16	L2	11	183	LSSSTISTHNY		30536
HPV16	L2	10	294	LTSRRTGIRY		30537
HPV16	L2	10	397	NTTIPFGGAY		30538
HPV16	L2	8	386	PSTSLSGY		30539
HPV16	L2	11	383	PSVPSTSLSGY		30540
HPV16	L2	9	358	PTSINNGLY		30541
HPV16	L2	8	221	PVARLGLY		30542
HPV16	L2	8	342	QTITPSTY		30543
HPV16	L2	8	12	RASATQLY		30544
HPV16	L2	11	9	RTKRASATQLY		30545
HPV16	L2	10	184	SSSTISTHNY		30546
HPV16	L2	9	185	SSTISTHNY		30547
HPV16	L2	8	186	STISTHNY		30548
HPV16	L2	11	62	TGSGTGGRGTG		30549
HPV16	L2	9	40	TIADQILQY		30550
HPV16	L2	8	359	TSINNGLY		30551
HPV16	L2	11	359	TSINNGLYDIY		30552
HPV16	L2	9	295	TSRRTGIRY		30553
HPV16	L2	9	398	TTIPFGGAY		30554
HPV16	L2	9	244	TTPTKLITY		30555
HPV16	L2	9	385	VPSTSLSGY		30556
HPV16	L2	11	437	YTHIADAGDFY		30557
HPV18	E1	8	578	AKDNRWPY		30558
HPV18	E1	10	213	AMLAVFKDTY		30559
HPV18	E1	8	531	ATTTCWTY		30560
HPV18	E1	9	411	DCATMCKHY		30561
HPV18	E1	10	529	DDATTTCWTY		30562
HPV18	E1	9	378	DESDMAFEY		30563
HPV18	E1	8	379	ESDMAFEY		30564
HPV18	E1	8	130	FTISDSGY		30565
HPV18	E1	9	484	GPANTGKSY	3.9000	30566
HPV18	E1	9	11	GTGCNGWFY		30567
HPV18	E1	10	576	HPAKDNRWPY		30568
HPV18	E1	8	401	KSNCQAKY		30569
HPV18	E1	10	259	KTLIQPHLY		30570
HPV18	E1	11	528	LDDATTTCWTY		30571
HPV18	E1	11	409	LKDCATMCKHY		30572
HPV18	E1	9	400	LKSNCOAKY		30573
HPV18	E1	9	319	LRSSVAALY		30574
HPV18	E1	11	319	LRSSVAALY		30575
HPV18	E1	11	376	LTDESDMAFEY		30576

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV18	E1	9	214	MLAVFKDTY		30577
HPV18	E1	10	600	PFDKNGNPVY		30578
HPV18	E1	8	320	RSSVAALY		30579
HPV18	E1	10	320	RSSVAALYWY		30580
HPV18	E1	9	321	SSVAALYWY		30581
HPV18	E1	8	322	SVAAALYWY		30582
HPV18	E1	10	377	TDESDMAFEY		30583
HPV18	E1	10	533	TTCWTFYFDY		30584
HPV18	E1	11	532	TTCWTFYFDY		30585
HPV18	E2	10	154	ATCVSHRGLY		30586
HPV18	E2	11	154	ATCVSHRGLY		30587
HPV18	E2	11	132	CMTYVAWDSVY		30588
HPV18	E2	8	156	CVSHRGLY		30589
HPV18	E2	9	156	CVSHRGLY		30590
HPV18	E2	8	29	DIDSQIQY		30591
HPV18	E2	11	26	DSKDIDSQIQY		30592
HPV18	E2	9	354	DSVQILVGY		30593
HPV18	E2	8	176	FKSECEKY		30594
HPV18	E2	11	352	IPDSVQILVGY		30595
HPV18	E2	9	329	KTGILTVY		30596
HPV18	E2	10	133	MTYVAWDSVY		30597
HPV18	E2	11	133	MTYVAWDSVY		30598
HPV18	E2	8	128	NKDNCMTY		30599
HPV18	E2	8	297	NSLKCLRY		30600
HPV18	E2	10	353	PDSVQILVGY		30601
HPV18	E2	11	56	QTLNHQVVPAY		30602
HPV18	E2	9	296	RNSLKCLRY		30603
HPV18	E2	10	27	SKDIDSQIQY		30604
HPV18	E2	11	230	STVSVGTAKTY		30605
HPV18	E2	10	231	TVSVGTAKTY		30606
HPV18	E2	9	165	VKEGYNTFY		30607
HPV18	E2	9	15	VQDKIIDHY		30608
HPV18	E2	8	157	VSHRGLY		30609
HPV18	E2	9	232	VSVGTAKTY		30610
HPV18	E2	11	173	YIEFKSECEKY		30611
HPV18	E2	8	135	YVAWDSVY		30612
HPV18	E2	9	135	YVAWDSVY		30613
HPV18	E5	10	30	AYAWVLVIFY		30614
HPV18	E5	11	43	ITSPATAFTVY		30615
HPV18	E5	9	23	LPSVCMCAV		30616
HPV18	E5	8	24	PSVCMCAV		30617
HPV18	E5	9	45	SPATAFTVY		30618
HPV18	E5	10	44	TSPATAFTVY		30619
HPV18	E6	8	27	DIEITCVY	0.0025	30620
HPV18	E6	11	46	EFAFKDLFVVY		30621
HPV18	E6	9	4	FEDPTRRPY	0.0017	30622

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV18	E6	8	49	FKDLFVVY		30623
HPV18	E6	11	71	FYSRIELRHY		30624
HPV18	E6	11	62	HAACHKIDFY		30625
HPV18	E6	10	25	LQDIEITCVY		30626
HPV18	E6	10	3	RFEDPTRRPY	0.0023	30627
HPV18	E6	11	89	TLEKLTNTGLY	0.0015	30628
HPV18	E6	10	72	YSRIELRIIY	5.9000	30629
HPV18	L1	9	495	APAEKNDPY	0.0008	30630
HPV18	L1	8	345	ASPGSCVY		30631
HPV18	L1	11	407	ASTQSPVPGQY		30632
HPV18	L1	10	286	CQSICKYPDY		30633
HPV18	L1	11	493	DAAPAEKNDPY		30634
HPV18	L1	9	258	DGDMVDTGY		30635
HPV18	L1	9	364	DSQLFNKPY		30636
HPV18	L1	8	330	DTVPQSLY		30637
HPV18	L1	8	517	FSLDLQY		30638
HPV18	L1	8	177	GLSGHPFY		30639
HPV18	L1	11	342	GMPASPGSCVY		30640
HPV18	L1	10	443	ITLTADVMSY		30641
HPV18	L1	9	516	KFSLDLQY		30642
HPV18	L1	10	120	KQDIPKVSAY		30643
HPV18	L1	11	256	LEDGMVDTGY		30644
HPV18	L1	8	445	LTADVMSY		30645
HPV18	L1	10	328	MGDTVPQSLY		30646
HPV18	L1	10	343	MPASPGSCVY		30647
HPV18	L1	8	496	PAENKDPY		30648
HPV18	L1	9	344	PASPGSCVY		30649
HPV18	L1	11	282	PLDICQSICKY		30650
HPV18	L1	9	472	PTTSLVDY		30651
HPV18	L1	9	287	QSICKYPDY		30652
HPV18	L1	8	410	QSPVPGQY		30653
HPV18	L1	10	416	QYDATKFKQY		30654
HPV18	L1	9	424	QYSRHVEEY		30655
HPV18	L1	8	66	RPSDNTVY		30656
HPV18	L1	10	363	SDSQLFNKPY		30657
HPV18	L1	11	100	SSRLLTGPNY		30658
HPV18	L1	10	408	STQSPVPGQY		30659
HPV18	L1	11	78	SVARVNTDDY		30660
HPV18	L1	11	327	TMGDTVPQSLY		30661
HPV18	L1	9	409	TQSPVPGQY		30662
HPV18	L1	11	362	TSDSQLFNKPY		30663
HPV18	L1	8	473	TTSLVDY		30664
HPV18	L1	9	204	VRDNVSVDY		30665
HPV18	L1	8	89	VTPTSIFY		30666
HPV18	L1	9	417	YDATKFKQY		30667
HPV18	L1	11	35	YMVIIHCCHY		30668

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A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV18	L1	8	425	YSRHVEEY		30669
HPV18	L1	9	4	YTRVLILIIY		30670
HPV18	L2	11	341	ATEDNDLFDIY		30671
HPV18	L2	11	322	DISIAPSPEY		30672
HPV18	L2	8	344	DNDLFDIY		30673
HPV18	L2	10	62	GSGTGGRTGY		30674
HPV18	L2	8	64	GTGGRTGY		30675
HPV18	L2	10	432	GTHYYLWPLY		30676
HPV18	L2	11	432	GTHYYLWPLY		30677
HPV18	L2	10	183	GTPTSGTHGY		30678
HPV18	L2	11	310	GTQIGARVHFY		30679
HPV18	L2	8	313	IGARVHFY		30680
HPV18	L2	10	323	ISPIAPSPEY		30681
HPV18	L2	9	10	KRASVTDLY		30682
HPV18	L2	10	242	LTRPSSLITY		30683
HPV18	L2	10	391	LTSSWDVPVY		30684
HPV18	L2	8	325	PIAPSPEY		30685
HPV18	L2	9	419	PTAPASTQY		30686
HPV18	L2	9	376	PTISSASSY		30687
HPV18	L2	8	185	PTSGTHGY		30688
HPV18	L2	8	11	RASVTDLY		30689
HPV18	L2	8	244	RPSSLITY		30690
HPV18	L2	11	364	RSTTSFAFFKY		30691
HPV18	L2	8	220	RVAGPRLY		30692
HPV18	L2	8	393	SSWDVPVY		30693
HPV18	L2	10	365	STTSFAFFKY		30694
HPV18	L2	10	342	TEDNDFDIY		30695
HPV18	L2	11	61	TGSGTGGRTGY		30696
HPV18	L2	8	377	TISSASSY		30697
HPV18	L2	8	367	TSFAFFKY		30698
HPV18	L2	9	392	TSSWDVPVY		30699
HPV18	L2	9	366	TTSFAFFKY		30700
HPV18	L2	11	417	VSPTAPASTQY		30701
HPV18	L2	11	374	YSPTISSASSY		30702
HPV31	E1	11	79	AEAVQVLKRRKY		30703
HPV31	E1	10	186	AMLGKFELY		30704
HPV31	E1	8	504	ATTPCWIIY		30705
HPV31	E1	10	502	DDATTPCWIIY		30706
HPV31	E1	9	351	DDSEIAYKY		30707
HPV31	E1	8	96	DISSCVDY		30708
HPV31	E1	10	336	DLQMVQWAY		30709
HPV31	E1	8	352	DSEIAYKY		30710
HPV31	E1	8	50	FIDNCNVY		30711
HPV31	E1	8	551	GKDDRWPY		30712
HPV31	E1	9	305	GMSNISDVY		30713
HPV31	E1	9	11	GTGCNGWFY	3.9000	30714

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A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV31	E1	10	456	IIGAPNTGKSY		30715
HPV31	E1	11	548	INAGKDDRWPY		30716
HPV31	E1	11	471	ISFLQGCIISY		30717
HPV31	E1	10	232	KTLLQPYCLY		30718
HPV31	E1	11	501	LDDATTPCWHY		30719
HPV31	E1	9	125	LFELPDSGY		30720
HPV31	E1	9	292	LRSTAAALY		30721
HPV31	E1	11	292	LRSTAAALYWY		30722
HPV31	E1	10	94	LSDISSCVDY		30723
HPV31	E1	9	337	LSQMVQWAY		30724
HPV31	E1	8	350	MDDSEIAY		30725
HPV31	E1	10	350	MDDSEIAYKY		30726
HPV31	E1	8	306	MSNISDVY		30727
HPV31	E1	11	47	MVDFIDNCNVY		30728
HPV31	E1	10	573	PFDKNGNPVY		30729
HPV31	E1	11	93	PLSDISSCVDY		30730
HPV31	E1	8	293	RSTAAALY		30731
HPV31	E1	10	293	RSTAAALYWY		30732
HPV31	E1	11	303	RTGMSNISDVY		30733
HPV31	E1	9	294	STAAALYWY		30734
HPV31	E1	8	295	TAAALYWY		30735
HPV31	E1	11	505	TTPCWHYIDNY		30736
HPV31	E1	11	382	VKDCGTMCRIHY		30737
HPV31	E1	9	349	VMDDEIAY		30738
HPV31	E1	11	349	VMDDEIAYKY		30739
HPV31	E1	10	419	WRDIVKFLRY		30740
HPV31	E2	9	11	CQDKILEHY		30741
HPV31	E2	10	122	DGDVIINTMHY		30742
HPV31	E2	11	22	DSKRLCDHIDY		30743
HPV31	E2	8	80	ETLNNTEY		30744
HPV31	E2	8	171	FTEEAKKY		30745
HPV31	E2	11	300	GDANILKCLRY		30746
HPV31	E2	9	336	KNAIVTLTY		30747
HPV31	E2	8	312	LSKYKQLY		30748
HPV31	E2	10	78	MLETNNTEY		30749
HPV31	E2	11	77	MLETNNTEY		30750
HPV31	E2	9	361	NTVSVSTGY		30751
HPV31	E2	10	106	PTGCLKKHGY		30752
HPV31	E2	8	37	RLECVLMY		30753
HPV31	E2	9	311	RLSKYKQLY		30754
HPV31	E2	11	128	TMIHYNWKFIY		30755
HPV31	E2	10	93	TMQQTSLELY		30756
HPV31	E2	8	362	TVSVSTGY		30757
HPV31	E2	8	160	VIIEGHITY		30758
HPV31	E2	11	92	WTMQQTSLELY		30759
HPV31	E2	8	131	YTNWKFIY		30760

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A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV31	E5	11	53	ATSPRLRCFCIY		30761
HPV31	E5	10	54	TSPLRCFCIY		30762
HPV31	E6	8	63	CTKCLRFY		30763
HPV31	E6	11	44	DFAFTDLTIVY		30764
HPV31	E6	10	14	ELSSALEIPY		30765
HPV31	E6	8	47	FTDLTIVY		30766
HPV31	E6	11	69	FYSKVSEFRWY		30767
HPV31	E6	8	72	KVSEFRWY		30768
HPV31	E6	10	72	KVSEFRWYRY		30769
HPV31	E6	9	15	LSSALEIPY		30770
HPV31	E6	11	22	PYDELRLNCVY		30771
HPV31	E6	8	16	SSALEIPY		30772
HPV31	E6	9	73	VSEFRWYRY		30773
HPV31	E6	10	23	YDELRLNCVY		30774
HPV31	E6	10	70	YSKVSEFRWY		30775
HPV31	E7	8	4	ETPTLQDY		30776
HPV31	E7	10	43	GQAEPTDSNY		30777
HPV31	E7	9	17	PEATDLHCY		30778
HPV31	E7	9	44	QAEPTDSNY		30779
HPV31	E7	10	16	QPEATDLHCY		30780
HPV31	E7	10	2	RGETPTLQDY		30781
HPV31	E7	8	285	ATLANSTY		30782
HPV31	L1	10	226	CNSICKYDPY		30783
HPV31	L1	8	129	DTENSRY		30784
HPV31	L1	8	270	ESVPTDLY		30785
HPV31	L1	10	127	FDDTENSRY		30786
HPV31	L1	9	356	FKSSNFKEY		30787
HPV31	L1	9	269	GESVPTDLY		30788
HPV31	L1	11	282	GSTATLANSTY		30789
HPV31	L1	10	382	ITLSADIMTY		30790
HPV31	L1	8	438	KEDPKDY		30791
HPV31	L1	11	126	KFDDTENSRY		30792
HPV31	L1	8	357	KSSNFKEY		30793
HPV31	L1	8	384	LSADIMTY		30794
HPV31	L1	8	43	LTVGHPY		30795
HPV31	L1	9	144	NRECISMDY		30796
HPV31	L1	9	227	NSICKYDPY		30797
HPV31	L1	9	437	PKEDPKDY		30798
HPV31	L1	11	222	PLDICNSICKY		30799
HPV31	L1	10	410	PPSGSLEDY		30800
HPV31	L1	9	411	PPSGSLEDY		30801
HPV31	L1	11	17	PVSKVVSTDEY		30802
HPV31	L1	8	5	RPSEATVY		30803
HPV31	L1	10	303	SDAQIFNKPY		30804
HPV31	L1	8	412	SGSLEDY		30805
HPV31	L1	10	283	STATLANSTY		30806

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Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV31	L1	11	24	TDEVVTRTNIY		30807
HPV31	L1	9	383	TLSADIMTY		30808
HPV31	L1	11	302	TSDAQIFNKPY		30809
HPV31	L1	11	354	TTFKSSNFKEY		30810
HPV31	L1	10	268	VGESVPTDLY		30811
HPV31	L1	10	18	VSKVVSTDEY		30812
HPV31	L1	8	28	VRTNIYY		30813
HPV31	L1	8	243	YGDTLFFY		30814
HPV31	L2	9	311	ATIGARVHY		30815
HPV31	L2	10	311	ATIGARVHY		30816
HPV31	L2	11	311	ATIGARVHY		30817
HPV31	L2	10	253	ETVNAEESLY		30818
HPV31	L2	11	237	FLSAPKQLITY		30819
HPV31	L2	8	433	FVDGGDFY		30820
HPV31	L2	10	436	GGDFYLHPSY		30821
HPV31	L2	11	436	GGDFYLHPSY		30822
HPV31	L2	10	63	SGTGGRTGY		30823
HPV31	L2	8	65	GTGGRTGY		30824
HPV31	L2	11	38	HTTIADQILRY		30825
HPV31	L2	8	41	IADQILRY		30826
HPV31	L2	8	313	IGARVIYY		30827
HPV31	L2	9	313	IGARVIYY		30828
HPV31	L2	8	245	ITYENPAY		30829
HPV31	L2	9	11	KRASATQLY		30830
HPV31	L2	9	348	LNDGLYDIY		30831
HPV31	L2	10	238	LSAPKQLITY		30832
HPV31	L2	11	178	LSSSSISTHINY		30833
HPV31	L2	10	287	LTSRRNTVRY		30834
HPV31	L2	9	378	QTSASVSAY		30835
HPV31	L2	8	12	RASATQLY		30836
HPV31	L2	8	216	RPARLGLY		30837
HPV31	L2	11	9	RTKRASATQLY		30838
HPV31	L2	11	309	SGATIGARVHY		30839
HPV31	L2	11	62	SGSGTGGRTGY		30840
HPV31	L2	8	181	SSSISTHINY		30841
HPV31	L2	9	180	SSSISTHINY		30842
HPV31	L2	10	179	SSSISTHINY		30843
HPV31	L2	8	346	STLNDGLY		30844
HPV31	L2	11	346	STLNDGLYDIY		30845
HPV31	L2	8	379	STSAVSAY		30846
HPV31	L2	9	40	TIADQILRY		30847
HPV31	L2	9	288	TSRRNTVRY		30848
HPV31	L2	9	345	TSLNDGLY		30849
HPV31	L2	10	39	TTIADQILRY		30850
HPV31	L2	10	344	TTSLNDGLY		30851
HPV31	L2	11	343	TTTSLNDGLY		30852

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Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV31	L2	8	255	VNAESLY		30853
HPV31	L2	10	377	VQTSASVAY		30854
HPV31	L2	11	430	VSIFVDGGDFY		30855
HPV33	E1	9	226	CTDWCITGY		30856
HPV33	E1	8	364	DDSDIAYY		30857
HPV33	E1	9	364	DDSDIAYY		30858
HPV33	E1	10	349	DLSEMVQWAY		30859
HPV33	E1	8	365	DSDIAYY		30860
HPV33	E1	9	587	FDENGPNVY		30861
HPV33	E1	9	470	GPANTGKSY		30862
HPV33	E1	8	564	GTDSRWPY		30863
HPV33	E1	11	192	HSSNTKANILY		30864
HPV33	E1	11	514	IDDVTPISWTY		30865
HPV33	E1	9	125	IDLEDSGY		30866
HPV33	E1	9	520	ISWTYIDDY		30867
HPV33	E1	10	124	KIDELEDSGY		30868
HPV33	E1	9	305	LRSQTCALY		30869
HPV33	E1	9	350	LSEMVQWAY		30870
HPV33	E1	9	362	LTDDSDIAY		30871
HPV33	E1	10	362	LTDDSDIAYY		30872
HPV33	E1	11	362	LTDDSDIAYY		30873
HPV33	E1	8	195	NTKANILY		30874
HPV33	E1	10	586	PFDENGPNVY		30875
HPV33	E1	10	519	PISWTYIDDY		30876
HPV33	E1	8	306	RSQTCALY		30877
HPV33	E1	10	193	SSNTKANILY		30878
HPV33	E1	8	363	TDDSDIAY		30879
HPV33	E1	9	363	TDDSDIAYY		30880
HPV33	E1	10	363	TDDSDIAYY		30881
HPV33	E1	11	561	TNAGTDSRWPY		30882
HPV33	E1	11	224	TSCTDWCITGY		30883
HPV33	E1	11	110	TSINKNKECTY		30884
HPV33	E1	11	395	VKDCGIMCRHY		30885
HPV33	E1	8	517	VTPISWTY		30886
HPV33	E2	10	78	ALETLSKSQY		30887
HPV33	E2	10	145	CTMVTGKVDY		30888
HPV33	E2	10	122	DNDKKNMTMDY		30889
HPV33	E2	10	282	ESNLKCLRY		30890
HPV33	E2	8	80	ETLSKSQY		30891
HPV33	E2	8	171	FKEDAAY		30892
HPV33	E2	11	281	GESNLKCLRY		30893
HPV33	E2	8	151	KVDYIGMY		30894
HPV33	E2	9	151	KVDYIGMY		30895
HPV33	E2	9	162	NCEKVYFKY		30896
HPV33	E2	8	284	NSLKCLRY		30897
HPV33	E2	9	113	QGETVTVQY		30898

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Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV33	E2	8	37	RMECALLY		30899
HPV33	E2	9	283	SNSLKCLRY		30900
HPV33	E2	11	128	TMDYTNWGEIY		30901
HPV33	E2	9	146	TMVTGKVDY		30902
HPV33	E2	9	11	VQEKILDLY		30903
HPV33	E2	11	148	VTGKVDYIGMY		30904
HPV33	E2	8	131	YTNWGEIY		30905
HPV33	E5	10	44	GSPLKIFCY		30906
HPV33	E5	11	43	VGSPLKIFCY		30907
HPV33	E6	9	46	AFADLTVVY		30908
HPV33	E6	11	44	DFAFADLTVVY		30909
HPV33	E6	8	47	FADLTVVY		30910
HPV33	E6	8	69	FLSKISEY		30911
HPV33	E6	11	69	FLSKISEYRHY		30912
HPV33	E6	9	73	ISEYRHYNY		30913
HPV33	E6	8	72	KISEYRHY		30914
HPV33	E6	10	72	KISEYRHYNY		30915
HPV33	E6	10	70	LSKISEYRIY		30916
HPV33	E7	10	43	GQAQPATADY		30917
HPV33	E7	11	43	GQAQPATADYY		30918
HPV33	E7	9	8	LKEYVLDLY		30919
HPV33	E7	11	6	PTLKEYVLDLY		30920
HPV33	E7	8	46	QPATADYY		30921
HPV33	E7	8	16	YPEPTDLY		30922
HPV33	E7	10	16	YPEPTDLYCY		30923
HPV33	L1	10	225	CGSTCKYPDY		30924
HPV33	L1	10	345	CTQVTSdstY		30925
HPV33	L1	8	129	DTETGNKY		30926
HPV33	L1	9	435	EKEDPLGKY		30927
HPV33	L1	9	303	ESQLFNKPY		30928
HPV33	L1	10	127	FDDTETGNKY		30929
HPV33	L1	11	359	FKEYIRHVEEY		30930
HPV33	L1	9	268	GEAVPDDL Y		30931
HPV33	L1	9	226	GSTCKYPDY		30932
HPV33	L1	8	436	KEDPLGKY		30933
HPV33	L1	11	126	KFDDTETGNKY		30934
HPV33	L1	8	355	KNENFKEY		30935
HPV33	L1	10	267	LGEAVPDDL Y		30936
HPV33	L1	8	42	LLAVGHIPY		30937
HPV33	L1	8	382	LTAEVMTY		30938
HPV33	L1	9	144	NRECLSM DY		30939
HPV33	L1	11	221	PIDICGSTCKY		30940
HPV33	L1	11	433	PKEKEDPLGKY		30941
HPV33	L1	10	408	PPSASLQDTY		30942
HPV33	L1	9	409	PSASLQDTY		30943
HPV33	L1	11	17	PVSKVVSTDEY		30944

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Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV33	L1	8	5	RPSEATVY		30945
HPV33	L1	8	410	SASLQDTY		30946
HPV33	L1	10	302	SESQFNKPY		30947
HPV33	L1	11	39	SSRLAVGHPY		30948
HPV33	L1	8	227	STCKYPDY		30949
HPV33	L1	11	352	STYKNENFKEY		30950
HPV33	L1	11	24	TDEYVSRISY		30951
HPV33	L1	11	301	TSESQFNKPY		30952
HPV33	L1	10	18	VSKVVSIDEY		30953
HPV33	L1	8	28	VSRTSIYY		30954
HPV33	L1	9	28	VSRTSIYY		30955
HPV33	L1	10	380	VTLTAEVMTY		30956
HPV33	L1	8	27	YVSRISY		30957
HPV33	L1	9	27	YVSRISY		30958
HPV33	L1	10	27	YVSRISY		30959
HPV33	L1	11	436	DGADFVLHPSY		30960
HPV33	L2	11	183	FSSPTVSTQSY		30961
HPV33	L2	10	437	GADFVLHPSY		30962
HPV33	L2	8	64	GSGGRTGY		30963
HPV33	L2	10	62	GSGGGRTGY		30964
HPV33	L2	11	218	GSRPVARLGLY		30965
HPV33	L2	11	37	GSTIADQILKY		30966
HPV33	L2	8	374	HTPMQHSY		30967
HPV33	L2	8	336	HTVPNEQY		30968
HPV33	L2	8	40	IADQILKY		30969
HPV33	L2	8	318	IGARIHY		30970
HPV33	L2	9	358	INDGLYDVY		30971
HPV33	L2	9	10	KRASATQLY		30972
HPV33	L2	9	348	LIIDTSTSSY		30973
HPV33	L2	10	243	LTSPhKLITY		30974
HPV33	L2	11	333	PLDHTVPNEQY		30975
HPV33	L2	8	186	PTVSTQSY		30976
HPV33	L2	8	221	PVARLGLY		30977
HPV33	L2	8	11	RASATQLY		30978
HPV33	L2	9	63	SGSGGRTGY		30979
HPV33	L2	10	184	SSPTVSTQSY		30980
HPV33	L2	10	354	SSYSINDGLY		30981
HPV33	L2	10	38	STIADQILKY		30982
HPV33	L2	9	355	SYINDGLY		30983
HPV33	L2	11	61	TGSGGGRTGY		30984
HPV33	L2	9	39	TIADQILKY		30985
HPV33	L2	9	244	TSPHKLITY		30986
HPV33	L2	11	353	TSSYSINDGLY		30987
HPV33	L2	8	356	YSINDGLY		30988
HPV33	L2	11	356	YSINDGLYDVY		30989
HPV45	E1	8	564	AKDNKWPY		30990

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A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV45	E1	10	199	AMLAVFKDIY		30991
HPV45	E1	8	517	ATHTCWTY		30992
HPV45	E1	9	397	DCAVMCRHY		30993
HPV45	E1	10	515	DDATHTCWTY		30994
HPV45	E1	9	364	DESDMAFQY		30995
HPV45	E1	10	562	DPKDNKWPY		30996
HPV45	E1	8	365	ESDMAFQY		30997
HPV45	E1	8	130	FTISDSGY		30998
HPV45	E1	9	470	GPANTGKSY		30999
HPV45	E1	11	459	GTPKKNCLLY		31000
HPV45	E1	10	519	HTCWTFYFDNY		31001
HPV45	E1	8	387	KSNCOAKY		31002
HPV45	E1	10	245	KTLIKPATLY		31003
HPV45	E1	11	514	LDDATHTCWTY		31004
HPV45	E1	11	395	LKDCAVMCRHY		31005
HPV45	E1	9	386	LKSNCOAKY		31006
HPV45	E1	9	305	LRSSVAALY		31007
HPV45	E1	11	305	LRSSVAALYWY		31008
HPV45	E1	11	362	LTDESDMAFQY		31009
HPV45	E1	9	200	MLAVFKDIY		31010
HPV45	E1	8	414	NMSQWIKY		31011
HPV45	E1	10	586	PFDKNGNPVY		31012
HPV45	E1	10	412	QMNSQWIKY		31013
HPV45	E1	8	306	RSSVAALY		31014
HPV45	E1	10	306	RSSVAALYWY		31015
HPV45	E1	9	307	SSVAALYWY		31016
HPV45	E1	8	308	SVAALYWY		31017
HPV45	E1	10	363	TDESDMAFQY		31018
HPV45	E2	11	134	CMNYVWDSIY		31019
HPV45	E2	8	158	CVSYWGVY		31020
HPV45	E2	9	158	CVSYWGVY		31021
HPV45	E2	11	28	DSKDINSQISY		31022
HPV45	E2	8	178	FKSECEKY		31023
HPV45	E2	10	186	GNSNTWEVQY		31024
HPV45	E2	8	167	IKDGDITY		31025
HPV45	E2	9	167	IKDGDITY		31026
HPV45	E2	11	151	IWDKTAACVSY		31027
HPV45	E2	9	300	KNSLKCLRY		31028
HPV45	E2	8	154	KTAACVSY		31029
HPV45	E2	9	17	LQDKILDHY		31030
HPV45	E2	8	130	NKDNCMNY		31031
HPV45	E2	8	301	NSLKCLRY		31032
HPV45	E2	9	187	NSNTWEVQY		31033
HPV45	E2	9	357	NSVQISVGY		31034
HPV45	E2	9	332	NTGILITY		31035
HPV45	E2	10	356	PNSVQISVGY		31036

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV45	E2	10	29	SKDINSQISY		31037
HPV45	E2	11	155	TAACVSYWGVY		31038
HPV45	E2	8	159	VSYWGVY		31039
HPV45	E6	9	37	ATLTERTEVY		31040
HPV45	E6	11	35	CKATLTERTEVY		31041
HPV45	E6	8	27	DVSIACVY		31042
HPV45	E6	9	4	FDDPTQRPY		31043
HPV45	E6	8	127	FHSIAGQY		31044
HPV45	E6	8	49	FKDLFIVY		31045
HPV45	E6	10	71	FYSRIRELRY		31046
HPV45	E6	11	71	FYSRIRELRY		31047
HPV45	E6	10	25	LQDVSIACVY		31048
HPV45	E6	11	46	QFAFKDLFIVY		31049
HPV45	E6	10	3	RFDDPTQRPY		31050
HPV45	E6	11	89	TLEKITNTELY		31051
HPV45	E6	8	38	TLETERVY		31052
HPV45	E6	11	62	YAACIKCIDFY		31053
HPV45	E6	9	72	YSRIRELRY		31054
HPV45	E6	10	72	YSRIRELRY		31055
HPV45	E7	10	20	ELDPVDLLCY		31056
HPV45	L1	11	375	ASTQNVPVNTY		31057
HPV45	L1	10	252	CQSICKYPDY		31058
HPV45	L1	9	224	DGDMVDTGY		31059
HPV45	L1	9	332	DSQLFNKPY		31060
HPV45	L1	11	461	DTTPPEKQDPY		31061
HPV45	L1	8	296	DTVPTDLY		31062
HPV45	L1	8	313	ETPGSCVY		31063
HPV45	L1	8	485	FSSDLDOY		31064
HPV45	L1	8	143	GLSGHPFY		31065
HPV45	L1	9	392	HYSRHVEEY		31066
HPV45	L1	11	222	IEDGDMVDTGY		31067
HPV45	L1	10	411	ITLTAEVMSY		31068
HPV45	L1	9	484	KFSSDLDOY		31069
HPV45	L1	10	86	KQAVPKVSAY		31070
HPV45	L1	8	413	LTAEVMSY		31071
HPV45	L1	10	294	MGDTVPDLY		31072
HPV45	L1	10	311	MRETPGSCVY		31073
HPV45	L1	11	310	NMRETPGSCVY		31074
HPV45	L1	11	383	NTYDPTKFKIHY		31075
HPV45	L1	11	248	PLDICQSICKY		31076
HPV45	L1	8	464	PPEKQDPY		31077
HPV45	L1	9	440	PTTSLVDY		31078
HPV45	L1	253	253	QSICKYPDY		31079
HPV45	L1	8	31	RPSDSTVY		31080
HPV45	L1	10	331	SDSQLFNKPY		31081
HPV45	L1	11	65	SSRLTVGNPY		31082

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV45	L1	10	376	STQNVPNTY		31083
HPV45	L1	11	43	SVARVNTDDY		31084
HPV45	L1	11	330	TSDSQLFNKPY		31085
HPV45	L1	10	462	TTPEKQDPY		31086
HPV45	L1	8	441	TTSLVDY		31087
HPV45	L1	10	384	TYDPTKFKHY		31088
HPV45	L1	11	293	VMGDTVPTDLY		31089
HPV45	L1	9	170	VRDNVSDY		31090
HPV45	L1	8	54	VSRTSIFY		31091
HPV45	L1	8	393	YSRHVEEY		31092
HPV45	L1	9	53	YVSRTSIFY		31093
HPV45	L2	11	340	ATNDSDLFDVY		31094
HPV45	L2	8	343	DSDLFDVY		31095
HPV45	L2	8	64	GSGGRTGY		31096
HPV45	L2	10	62	GSGGRTGY		31097
HPV45	L2	183	183	GTPTSGSHGY		31098
HPV45	L2	10	433	GTQYYLWPWY		31099
HPV45	L2	11	433	GTQYYLWPWY		31100
HPV45	L2	9	365	HKSFTYPKY		31101
HPV45	L2	9	10	KRASATDLY		31102
HPV45	L2	8	366	KSFTYPKY		31103
HPV45	L2	11	375	LTMPSTAASSY		31104
HPV45	L2	10	392	LTSAWDVPIY		31105
HPV45	L2	9	377	MPSTAASSY		31106
HPV45	L2	9	342	NDSDLFDVY		31107
HPV45	L2	8	378	PSTAASSY		31108
HPV45	L2	10	361	PSTHKSTY		31109
HPV45	L2	9	420	PTNASITTY		31110
HPV45	L2	8	185	PTSGSHGY		31111
HPV45	L2	8	11	RASATDLY		31112
HPV45	L2	9	63	SOGGRTGY		31113
HPV45	L2	11	246	SSLVTFDNPAY		31114
HPV45	L2	9	362	STHKSTY		31115
HPV45	L2	11	61	TGSGGRTGY		31116
HPV45	L2	10	376	TMFSTAASSY		31117
HPV45	L2	8	421	TNASITTY		31118
HPV45	L2	10	341	TNDSDLFDVY		31119
HPV45	L2	11	360	TPSTHKSTY		31120
HPV45	L2	9	393	TSAWDVPIY		31121
HPV45	L2	11	418	TSPTNASITTY		31122
HPV45	L2	11	426	TTYIGHGTQY		31123
HPV45	L2	8	249	VTEDNPAY		31124
HPV45	L2	10	21	ALESITTY		31125
HPV56	E2	9	71	CMQYVAVWKY		31126
HPV56	E2	11	71	CMQYVAVWKY		31127
HPV56	E2	11	138	CPDSVSSTCRY		31128

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV56	E2	10	92	CSGVDYRGIIY		31129
HPV56	E2	11	92	CSGVDYRGIIY		31130
HPV56	E2	10	65	DGSKNNCMQY		31131
HPV56	E2	9	140	DSVSSTCRY		31132
HPV56	E2	8	23	ESLSTTIY		31133
HPV56	E2	11	294	FLSHVKIPVY		31134
HPV56	E2	8	261	FVDVTSY		31135
HPV56	E2	9	66	GSKNNCMQY		31136
HPV56	E2	8	94	GVDYRGIIY		31137
HPV56	E2	9	94	GVDYRGIIY		31138
HPV56	E2	8	130	HMENESIY		31139
HPV56	E2	11	258	KTLFVDVTSTY		31140
HPV56	E2	9	22	LESLSSTIY		31141
HPV56	E2	10	295	LSHVKIPVY		31142
HPV56	E2	11	149	NVSPVETVNEY		31143
HPV56	E2	9	277	NYSIITIY		31144
HPV56	E2	10	139	PDSVSSTCRY		31145
HPV56	E2	8	152	PVETVNEY		31146
HPV56	E2	8	141	SVSSTCRY		31147
HPV56	E2	8	271	TSTDNKNY		31148
HPV56	E2	11	91	VCSGVDYRGIIY		31149
HPV56	E2	8	103	VHDGHKTY		31150
HPV56	E2	9	103	VHDGHKTY		31151
HPV56	E2	10	150	VSPVETVNEY		31152
HPV56	E2	9	270	WTSTDNKNY		31153
HPV56	E2	8	278	YSIITIY		31154
HPV56	E2	8	74	YVAWKYIY		31155
HPV56	E2	9	74	YVAWKYIY		31156
HPV56	E6	8	50	CTELKLVY		31157
HPV56	E6	8	72	FYSKVRKY		31158
HPV56	E6	10	72	FYSKVRKYRY		31159
HPV56	E6	11	72	FYSKVRKYRY		31160
HPV56	E6	10	37	KKELTRAEVY		31161
HPV56	E6	9	99	LCDLLIRCY		31162
HPV56	E6	10	26	LIDLRLSCVY		31163
HPV56	E6	11	47	NFACTELKLVY		31164
HPV56	E6	9	73	YSKVRKYRY		31165
HPV56	E6	10	73	YSKVRKYRY		31166
HPV56	E7	9	51	RQAKQHTCY		31167
HPV56	L1	11	273	ADAYGDSMWFY		31168
HPV56	L1	8	381	ATEQLSKY		31169
HPV56	L1	8	444	ATSLEDKY		31170
HPV56	L1	10	444	ATSLEDKYRY		31171
HPV56	L1	11	37	ATWRPSENKVY		31172
HPV56	L1	11	60	DSYVKRTSIFY		31173
HPV56	L1	8	303	ETIPAELY		31174

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Positon	Sequence	A*0101	Seq. Id. No.
HPV56	L1	10	316	GREPPSSVY		31175
HPV56	L1	11	378	ISTATEQLSKY		31176
HPV56	L1	10	414	ITLSAEVMAY		31177
HPV56	L1	8	470	KQDPLAKY		31178
HPV56	L1	10	93	KTNIPKVSAY		31179
HPV56	L1	10	387	KYDARKINQY		31180
HPV56	L1	8	77	LLAVGHPY		31181
HPV56	L1	9	77	LLAVGHPY		31182
HPV56	L1	8	416	LSAEVMAY		31183
HPV56	L1	9	1	MMLPMMYTY		31184
HPV56	L1	11	255	PLDIVQSTCKY		31185
HPV56	L1	11	467	PTEKQDPLAKY		31186
HPV56	L1	10	442	PVATSLEDKY		31187
HPV56	L1	11	52	PVSKVVATDSY		31188
HPV56	L1	9	260	QSTCKYPDY		31189
HPV56	L1	8	40	RPSNKVY		31190
HPV56	L1	10	285	RREQLFARHY		31191
HPV56	L1	10	336	SEAQLFNKPY		31192
HPV56	L1	8	446	SLEDKYRY		31193
HPV56	L1	11	74	SSRLAVGHPY		31194
HPV56	L1	10	379	STATEQLSKY		31195
HPV56	L1	8	261	STCKYPDY		31196
HPV56	L1	9	415	TLSAEVMAY		31197
HPV56	L1	11	335	TSEAQLFNKPY		31198
HPV56	L1	9	445	TSLEDKYRY		31199
HPV56	L1	10	301	VGETIPAELY		31200
HPV56	L1	10	259	VQSTCKYPDY		31201
HPV56	L1	10	53	VSKVVATDSY		31202
HPV56	L1	9	388	YDARKINQY		31203
HPV56	L1	8	276	YGDSMWFY		31204
HPV56	L1	8	9	YRDPPLHY		31205
HPV56	L2	8	64	GSGGRAGY		31206
HPV56	L2	10	434	GSSFALWPVY		31207
HPV56	L2	10	62	GTGSGGRAGY		31208
HPV56	L2	10	310	GTQIGARVIY		31209
HPV56	L2	11	310	GTQIGARVIY		31210
HPV56	L2	8	313	IGARVIY		31211
HPV56	L2	9	313	IGARVIY		31212
HPV56	L2	11	182	ISTFTSGIHSY		31213
HPV56	L2	9	10	KRASATQLY		31214
HPV56	L2	11	338	LSANNSFDGLY		31215
HPV56	L2	8	341	NNSFDGLY		31216
HPV56	L2	11	341	NNSFDGLYDIY		31217
HPV56	L2	10	342	NNSFDGLYDIY		31218
HPV56	L2	8	185	PTSGIHSY		31219
HPV56	L2	9	423	PYDVTIDVY		31220

Table XV
A01 Motif Peptides

Type	Protein	No. of Amino Acids	Position	Sequence	A*0101	Seq. Id. No.
HPV56	L2	11	433	QGSSFALWPVY		31221
HPV56	L2	11	421	QSPYDVTHDVY		31222
HPV56	L2	8	11	RASATQLY		31223
HPV56	L2	8	220	RIAAPRLY		31224
HPV56	L2	8	436	SFALWPVY		31225
HPV56	L2	9	343	SFDGLYDIY		31226
HPV56	L2	9	435	SSFALWPVY		31227
HPV56	L2	10	183	STPTSGIHSY		31228
HPV56	L2	11	414	STW/PFVPQSPY		31229
HPV56	L2	9	63	TGSGGRAGY		31230

Q06T060" Q26T04960
Q06T060" Q26T04960

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	AAALYWYK	316	8		31231
HPV16	E1	AAFGLTPSIA	239	10		31232
HPV16	E1	AAMLAKFK	205	8		31233
HPV16	E1	AAMLAKFKELY	205	11		31234
HPV16	E1	AANTGKSLF	478	9		31235
HPV16	E1	ADAKIGMLDDA	514	11		31236
HPV16	E1	ADSIKTLQQY	248	11		31237
HPV16	E1	ADTNSNASH	383	9		31238
HPV16	E1	ADTNSNASAF	383	10		31239
HPV16	E1	AFGLTPSIA	240	9		31240
HPV16	E1	AFLKSNQA	391	9		31241
HPV16	E1	AFLKSNQAQK	391	10		31242
HPV16	E1	AGTDSRWPY	570	9		31243
HPV16	E1	AGTDSRWPLYH	570	11		31244
HPV16	E1	AICIEKQSR	112	9	0.0010	31245
HPV16	E1	AICIEKQSRRA	112	10		31246
HPV16	E1	AICIEKQSRRA	112	11		31247
HPV16	E1	ALFTAQEA	69	8		31248
HPV16	E1	ALFTAQEAQ	69	9	0.2400	31249
HPV16	E1	ALFTAQEAQHI	69	11		31250
HPV16	E1	ALKRFLQGIK	459	11		31251
HPV16	E1	AMLAKFKELY	206	10		31252
HPV16	E1	ASAFKSNQA	389	11		31253
HPV16	E1	ATMCRHYK	406	8		31254
HPV16	E1	ATMCRHYKR	406	9	0.0660	31255
HPV16	E1	ATMCRHYKRA	406	10		31256
HPV16	E1	ATVPCWNY	524	8		31257
HPV16	E1	AVQVLKRR	82	8		31258
HPV16	E1	AVQVLKRRY	82	9		31259
HPV16	E1	AVVEKKTGDA	23	10		31260
HPV16	E1	CATMCRHY	405	8		31261
HPV16	E1	CATMCRHYK	405	9	0.0012	31262
HPV16	E1	CATMCRHYKR	405	10		31263
HPV16	E1	CATMCRHYKRA	405	11		31264
HPV16	E1	CCDWICIAA	233	8		31265
HPV16	E1	CCDWICIAAF	233	9		31266
HPV16	E1	CDRVDDGGDWK	430	11		31267
HPV16	E1	CDWCIAAF	234	8		31268
HPV16	E1	CFVNSKSH	500	8		31269
HPV16	E1	CFVNSKSHF	500	9		31270
HPV16	E1	CGKNRETEK	283	10		31271
HPV16	E1	CIEKQSR	114	8		31272
HPV16	E1	CIEKQSRRA	114	9		31273
HPV16	E1	CIEKQSRRAK	114	10		31274
HPV16	E1	CIEKQSRRAKR	114	11		31275
HPV16	E1	CILLYGAA	472	8		31276

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	CLYLHIQSLA	259	10		31277
HPV16	E1	CMMIEPPK	304	8		31278
HPV16	E1	CMMIEPPKLR	304	10		31279
HPV16	E1	CVDNNISPR	101	9		31280
HPV16	E1	CVDNNISPRLK	101	11		31281
HPV16	E1	DAKIGMLDDA	515	10		31282
HPV16	E1	DATVPCWNY	523	9		31283
HPV16	E1	DAVQVLKR	81	8		31284
HPV16	E1	DAVQVLKRK	81	9		31285
HPV16	E1	DAVQVLKRKY	81	10		31286
HPV16	E1	DCATMCRH	404	8		31287
HPV16	E1	DCATMCRHY	404	9	0.0001	31288
HPV16	E1	DCATMCRHYK	404	10	0.0044	31289
HPV16	E1	DCATMCRHYKR	404	11		31290
HPV16	E1	DDATVPCWNY	522	10		31291
HPV16	E1	DDSEIAYK	371	8		31292
HPV16	E1	DDSEIAYKY	371	9		31293
HPV16	E1	DDSEIAYKYA	371	10		31294
HPV16	E1	DFIVNDNDY	50	9		31295
HPV16	E1	DGDSLPTF	631	8		31296
HPV16	E1	DGDSLPTFK	631	9		31297
HPV16	E1	DGGDWKQIVMF	435	11		31298
HPV16	E1	DGNLVSMDEVK	541	10		31299
HPV16	E1	DGNLVSMDEVKH	541	11		31300
HPV16	E1	DIVDDSEIA	368	9		31301
HPV16	E1	DIVDDSEIAY	368	10		31302
HPV16	E1	DIVDDSEIAYK	368	11		31303
HPV16	E1	DSDTGEDLVDF	41	11		31304
HPV16	E1	DSEIAYKY	372	8		31305
HPV16	E1	DSEIAYKYA	372	9		31306
HPV16	E1	DSIKTLQY	249	10		31307
HPV16	E1	DSRWPLYLH	573	8		31308
HPV16	E1	DSRWPLYLINR	573	10		31309
HPV16	E1	DTGEDLVDF	43	9		31310
HPV16	E1	DTNSNASE	384	8		31311
HPV16	E1	DTNSNASAF	384	9		31312
HPV16	E1	DTNSNASAFK	384	11		31313
HPV16	E1	DTPEWIQR	335	8		31314
HPV16	E1	DVKHRPLVQLK	548	11		31315
HPV16	E1	EAKQHRDA	75	8		31316
HPV16	E1	EAVVEKKTGDA	22	11		31317
HPV16	E1	EFMSFLTA	452	8		31318
HPV16	E1	EFMSFLTALK	452	10		31319
HPV16	E1	EFMSFLTALKR	452	11		31320
HPV16	E1	EGTGCNGWF	11	9	0.0008	31321
HPV16	E1	EGTGCNGWFF	11	10	0.0005	31322

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	EIAYKYAQLA	374	10		31323
HPV16	E1	ELNDKNWK	603	8		31324
HPV16	E1	ELNDKNWKSF	603	10		31325
HPV16	E1	ELNDKNWKSFF	603	11		31326
HPV16	E1	ELSQQMVQWA	356	9		31327
HPV16	E1	ELSQQMVQWAY	356	10		31328
HPV16	E1	ELVRPFKSNK	221	10		31329
HPV16	E1	ETAHALFTA	65	9		31330
HPV16	E1	ETETAHALF	63	9		31331
HPV16	E1	ETETAHALFTA	63	11		31332
HPV16	E1	ETETPCSQY	152	9		31333
HPV16	E1	ETIEKLLSK	288	9		31334
HPV16	E1	ETQQMLQVEGR	140	11		31335
HPV16	E1	FDENGPNVY	594	9		31336
HPV16	E1	FFSRTWSR	612	8		31337
HPV16	E1	FGLTPSIA	241	8		31338
HPV16	E1	FGMSLMKF	486	8		31339
HPV16	E1	FIVNDNDY	51	8		31340
HPV16	E1	FLKSNQA	392	8	0.0013	31341
HPV16	E1	FLKSNQAQK	392	9		31342
HPV16	E1	FLQGIPKK	463	8		31343
HPV16	E1	FLQGSVICF	493	9		31344
HPV16	E1	FLRYQGVF	445	9		31345
HPV16	E1	FLTALKRF	456	8	0.1300	31346
HPV16	E1	FMSFLTALK	453	9		31347
HPV16	E1	FMSFLTALKR	453	10		31348
HPV16	E1	FMSFLTALKRF	453	11		31349
HPV16	E1	FSELVRPF	219	8		31350
HPV16	E1	FSELVRPFK	219	9		31351
HPV16	E1	FSRTWSRSLH	613	11		31352
HPV16	E1	FTAQEAQKH	71	9		31353
HPV16	E1	FTAQEAQKQHR	71	10		31354
HPV16	E1	FTFPNEFP	586	9		31355
HPV16	E1	FVNSKSHF	501	8		31356
HPV16	E1	GAANTGKSLF	477	10		31357
HPV16	E1	GCNGWFYVEA	14	10		31358
HPV16	E1	GCVDNNISPR	100	10		31359
HPV16	E1	GDSLPTFK	632	8		31360
HPV16	E1	GDTPEWQIR	334	9	0.0008	31361
HPV16	E1	GDWKQIVMF	437	9		31362
HPV16	E1	GDWKQIVMFLR	437	11		31363
HPV16	E1	GGDWKQIVMF	436	10		31364
HPV16	E1	GGEVSR	176	8		31365
HPV16	E1	GGEVSRH	176	9		31366
HPV16	E1	GGSGGCSQY	162	10		31367
HPV16	E1	GIPKKNCLLY	466	11		31368

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	GISNISEVY	325	9		31369
HPV16	E1	GLTTSIADSIK	242	11		31370
HPV16	E1	GMVVLVLR	272	9	0.0036	31371
HPV16	E1	GMVVLVLR	272	10		31372
HPV16	E1	GMVVLVLR	272	11		31373
HPV16	E1	GSNGGVSR	174	10		31374
HPV16	E1	GSNGGVSRH	174	11		31375
HPV16	E1	GSNGGCSQY	163	9		31376
HPV16	E1	GSVCFVNSK	496	10		31377
HPV16	E1	GTDSRWPY	571	8		31378
HPV16	E1	GTDSRWPLYH	571	10		31379
HPV16	E1	GTGNGWF	12	8		31380
HPV16	E1	GTGNGWFY	12	9	0.0004	31381
HPV16	E1	GVFFMSFLTA	450	10		31382
HPV16	E1	GVFSSELVR	216	9	0.0011	31383
HPV16	E1	GVFSSELVRPF	216	11		31384
HPV16	E1	HALFTAQEA	68	9		31385
HPV16	E1	HALFTAQEA	68	10		31386
HPV16	E1	HFVWLQPLA	507	8		31387
HPV16	E1	HFVWLQPLADA	507	10		31388
HPV16	E1	HFVWLQPLADAK	507	11		31389
HPV16	E1	HSFNDCTF	348	8		31390
HPV16	E1	IAAFGLTPSIA	238	11		31391
HPV16	E1	IAYKQAQLA	375	9		31392
HPV16	E1	ICFVNSKSH	499	9		31393
HPV16	E1	ICFVNSKSHF	499	10		31394
HPV16	E1	ICIEKQSR	113	8		31395
HPV16	E1	ICIEKQSR	113	9		31396
HPV16	E1	ICIEKQSR	113	10		31397
HPV16	E1	ICIEKQSR	113	11		31398
HPV16	E1	ICIEKQSR	113	8		31399
HPV16	E1	ILLYGAANTGK	532	11		31400
HPV16	E1	ILVLTSTNA	473	10		31401
HPV16	E1	ILVLTSTNA	194	11		31402
HPV16	E1	ISNISEVY	326	8		31403
HPV16	E1	IVDDSEIA	369	8		31404
HPV16	E1	IVDDSEIAY	369	9		31405
HPV16	E1	IVDDSEIAYK	369	10		31406
HPV16	E1	IVDDSEIAYKY	369	11		31407
HPV16	E1	IVKDCATMCR	401	10		31408
HPV16	E1	IVKDCATMCRH	401	11		31409
HPV16	E1	IVNDNDYLTQA	52	11		31410
HPV16	E1	KAAMLAKF	204	8		31411
HPV16	E1	KAAMLAKFK	204	9	0.1100	31412
HPV16	E1	KAICIEKQSR	111	10		31413
HPV16	E1	KAICIEKQSR	111	11		31414

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	KCGKNRETIK	282	11		31415
HPV16	E1	KDCATMCR	403	8		31416
HPV16	E1	KDCATMCRH	403	9	0.0011	31417
HPV16	E1	KDCATMCRHY	403	10	0.0005	31418
HPV16	E1	KDCATMCRHYK	403	11		31419
HPV16	E1	KFKELYGVSF	210	10		31420
HPV16	E1	KFLOGSVICF	492	10		31421
HPV16	E1	KIGMLDDA	517	8		31422
HPV16	E1	KIVKDCATMCR	400	11		31423
HPV16	E1	KLRSTAAA	311	8		31424
HPV16	E1	KLRSTAAALY	311	10		31425
HPV16	E1	KSFRTWSR	610	10		31426
HPV16	E1	KSHFWLQPLA	505	10		31427
HPV16	E1	KSLFGMSLMK	483	10		31428
HPV16	E1	KSLFGMSLMKF	483	11		31429
HPV16	E1	KSNSQAKIVK	394	10		31430
HPV16	E1	KSTCCDWGIA	230	10		31431
HPV16	E1	KSTCCDWGIAA	230	11		31432
HPV16	E1	KTGHSNISEVY	323	11		31433
HPV16	E1	KTLLQYCLY	252	10		31434
HPV16	E1	KTSNAKAA	199	8		31435
HPV16	E1	KTSNAKAAAMLA	199	11		31436
HPV16	E1	LADTNSNA	382	8		31437
HPV16	E1	LADTNSNASE	382	10		31438
HPV16	E1	LADTNSNASAF	382	11		31439
HPV16	E1	LAKFKELY	208	8		31440
HPV16	E1	LDDATVPCWNY	521	11		31441
HPV16	E1	LDGNLYSMDVK	540	11		31442
HPV16	E1	LFESDSGY	126	9		31443
HPV16	E1	LFGMSLMK	485	8		31444
HPV16	E1	LFGMSLMKF	485	9		31445
HPV16	E1	LFTAQAEAK	70	8		31446
HPV16	E1	LFTAQAEAKQH	70	10		31447
HPV16	E1	LFTAQAEAKQHR	70	11		31448
HPV16	E1	LITSNINA	563	8		31449
HPV16	E1	LLITSNINA	562	9		31450
HPV16	E1	LLVRYKCGK	276	10		31451
HPV16	E1	LLQYCLY	254	8		31452
HPV16	E1	LLQYCLYLYH	254	10		31453
HPV16	E1	LLVRYKCGK	277	9	0.0043	31454
HPV16	E1	LLVRYKCGKNR	277	11		31455
HPV16	E1	LLYGAANTGK	474	10		31456
HPV16	E1	LSLHEDEDK	620	9	0.0005	31457
HPV16	E1	LSQMVQWA	357	8		31458
HPV16	E1	LSQMVQWAY	357	9		31459
HPV16	E1	LTNILNLK	191	9	0.0086	31460

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	LTPSIADSIK	243	10		31461
HPV16	E1	LTQAEETETA	59	9		31462
HPV16	E1	LTQAEETETAH	59	10		31463
HPV16	E1	LTQAEETETAHA	59	11		31464
HPV16	E1	LVDFIVNDNDY	48	11		31465
HPV16	E1	LVRPFKSNK	222	9	0.0700	31466
HPV16	E1	LVRYKCGK	278	8		31467
HPV16	E1	LVRYKCGKNR	278	10		31468
HPV16	E1	LVSMDEVKH	544	8		31469
HPV16	E1	LVSMDEVKHR	544	9		31470
HPV16	E1	LVVFTFPNEF	583	10	0.0005	31471
HPV16	E1	MCMMIEPPK	303	9		31472
HPV16	E1	MCMMIEPPKLR	303	11		31473
HPV16	E1	MCRHYKRA	408	8		31474
HPV16	E1	MCRHYKRAEK	408	10		31475
HPV16	E1	MCRHYKRAEKK	408	11		31476
HPV16	E1	MFLRYQGVF	444	10		31477
HPV16	E1	MIPEPKLR	306	8		31478
HPV16	E1	MIPEPKLRSTA	306	11		31479
HPV16	E1	MLAKFKELY	207	9		31480
HPV16	E1	MLQVEGRH	144	8		31481
HPV16	E1	MMIEPKLR	305	9	0.0010	31482
HPV16	E1	MSFLTALK	454	8		31483
HPV16	E1	MSFLTALKR	454	9	0.0870	31484
HPV16	E1	MSFLTALKRF	454	10		31485
HPV16	E1	MSMSQWIK	420	8		31486
HPV16	E1	MSMSQWIKY	420	9		31487
HPV16	E1	MSMSQWIKYR	420	10		31488
HPV16	E1	MSQWIKYR	422	8		31489
HPV16	E1	MSQWIKYRCDR	422	11		31490
HPV16	E1	MVLLLVLR	273	8		31491
HPV16	E1	MVLLLVRY	273	9		31492
HPV16	E1	MVLLLVRYK	273	10		31493
HPV16	E1	NAGTDSRWPY	569	10		31494
HPV16	E1	NAKAAMLA	202	8		31495
HPV16	E1	NAKAAMLAK	202	9	0.0005	31496
HPV16	E1	NAKAAMLAKF	202	10		31497
HPV16	E1	NAKAAMLAKFK	202	11		31498
HPV16	E1	NCILLYGA	471	8		31499
HPV16	E1	NCILLYGAA	471	9		31500
HPV16	E1	NDGDSLPTF	630	9		31501
HPV16	E1	NDGDSLPTFK	630	10		31502
HPV16	E1	NDIVDDSEIA	367	10		31503
HPV16	E1	NDIVDDSEIAY	367	11		31504
HPV16	E1	NDKNWKSFF	605	8		31505
HPV16	E1	NDKNWKSFF	605	9		31506

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	NDKNWKSFFSR	605	11		31507
HPV16	E1	NDNDYLTQA	54	9		31508
HPV16	E1	NGNPVVELNDK	597	11		31509
HPV16	E1	NGWFYVEA	16	8		31510
HPV16	E1	NILNVLKTSNA	193	11		31511
HPV16	E1	NINAGTDSR	567	9	0.0005	31512
HPV16	E1	NISPLKA	105	8		31513
HPV16	E1	NLVSMDEVK	543	8		31514
HPV16	E1	NLVSMDEVKH	543	9		31515
HPV16	E1	NLVSMDEVKHIR	543	10		31516
HPV16	E1	NSNASAFK	386	9		31517
HPV16	E1	NSQAKIVK	396	8	0.0005	31518
HPV16	E1	NSQAKIVKDCA	396	11		31519
HPV16	E1	NVLKTSNA	196	8		31520
HPV16	E1	NVLKTSNAK	196	9	0.0005	31521
HPV16	E1	NVLKTSNAKA	196	10		31522
HPV16	E1	NVLKTSNAKAA	196	11		31523
HPV16	E1	PCWNYIDDNLR	527	11		31524
HPV16	E1	PFDEGNPVY	593	10		31525
HPV16	E1	PLITSNINA	561	10		31526
HPV16	E1	PLTNILNVLK	190	10		31527
HPV16	E1	PMCMMIEPPK	302	10		31528
HPV16	E1	PSIADSIK	245	8		31529
HPV16	E1	PVYELNDK	600	8		31530
HPV16	E1	PVYELNDKNWK	600	11		31531
HPV16	E1	QAETETAH	61	8		31532
HPV16	E1	QAETETAHA	61	9		31533
HPV16	E1	QAETETAHALF	61	11		31534
HPV16	E1	QAKIVKDCA	398	9		31535
HPV16	E1	QGSVICFVNSK	495	11		31536
HPV16	E1	QGVFMSF	449	8		31537
HPV16	E1	QGVFMSFLTA	449	11		31538
HPV16	E1	QIVMFLRY	441	8		31539
HPV16	E1	QLADTNSNA	381	9		31540
HPV16	E1	QLADTNSNASH	381	11		31541
HPV16	E1	QMLQVEGR	143	8		31542
HPV16	E1	QMLQVEGRH	143	9		31543
HPV16	E1	QMSMSQWIK	419	9		31544
HPV16	E1	QMSMSQWIKY	419	10	0.0023	31545
HPV16	E1	QMSMSQWIKYR	419	11		31546
HPV16	E1	QSRRAKRR	118	8		31547
HPV16	E1	QSRRAKRRRLF	118	10		31548
HPV16	E1	QTVLQHSF	343	8		31549
HPV16	E1	RAAKRRLF	120	8		31550
HPV16	E1	RDAVQVLK	80	8		31551
HPV16	E1	RDAVQVLKR	80	9		31552

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	RDVQVLKRR	80	10		31553
HPV16	E1	RDVQVLKRRY	80	11		31554
HPV16	E1	RFLQIPK	462	8		31555
HPV16	E1	RFLQIPKK	462	9		31556
HPV16	E1	RLFEEDSGY	125	10		31557
HPV16	E1	RLKAICIEK	109	9	0.0840	31558
HPV16	E1	RLSLHEDEK	619	10		31559
HPV16	E1	RLVVFPPNEF	582	11		31560
HPV16	E1	RSTAAALY	313	8		31561
HPV16	E1	RSTAAALYWY	313	10		31562
HPV16	E1	RSTAAALYWYK	313	11		31563
HPV16	E1	RTWSRLSLH	615	9		31564
HPV16	E1	RVDDGGDWK	432	9		31565
HPV16	E1	SAFLKNSQA	390	10		31566
HPV16	E1	SAFLKNSQAK	390	11		31567
HPV16	E1	SDTGEDLVDF	42	10		31568
HPV16	E1	SFFSRTWSR	611	9		31569
HPV16	E1	SFLTALKR	455	8		31570
HPV16	E1	SFLTALKRF	455	9		31571
HPV16	E1	SFSELVRPF	218	9		31572
HPV16	E1	SFSELVRPEK	218	10		31573
HPV16	E1	SGCVDNNISPR	99	11		31574
HPV16	E1	SGGEGVSR	175	9		31575
HPV16	E1	SGGEGVSEII	175	10		31576
HPV16	E1	SGGGCSQY	164	8		31577
HPV16	E1	SGSGGGCSQY	161	11		31578
HPV16	E1	SGSGGEGVSR	173	11		31579
HPV16	E1	SIKTLLQY	250	9	0.7200	31580
HPV16	E1	SLFGMSLMK	484	9		31581
HPV16	E1	SLFGMSLMKF	484	10		31582
HPV16	E1	SLHEDEK	621	8		31583
HPV16	E1	SMSQWIKY	421	8		31584
HPV16	E1	SMSQWIKYR	421	9	0.6900	31585
HPV16	E1	STAAALYWY	314	9		31586
HPV16	E1	STAAALYWYK	314	10		31587
HPV16	E1	STCCDWICIA	231	9		31588
HPV16	E1	STCCDWICIAA	231	10		31589
HPV16	E1	STCCDWICIAAF	231	11		31590
HPV16	E1	SVICFVNSK	497	9	0.0005	31591
HPV16	E1	SVICFVNSKSH	497	11		31592
HPV16	E1	TAAALYWY	315	8		31593
HPV16	E1	TAAALYWYK	315	9	0.7800	31594
HPV16	E1	TAHALFTA	66	8		31595
HPV16	E1	TAHALFTAQEA	66	11		31596
HPV16	E1	TAQEAQKH	72	8		31597
HPV16	E1	TAQEAQKQHR	72	9	0.0005	31598

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	TAQEAQHIRDA	72	11		31599
HPV16	E1	TCCDWICIA	232	8		31600
HPV16	E1	TCCDWICIAA	232	9		31601
HPV16	E1	TCCDWICIAAF	232	10		31602
HPV16	E1	TDSRWPYLH	572	9		31603
HPV16	E1	TDSRWPYLHNR	572	11		31604
HPV16	E1	TFELSQMVQWA	354	11		31605
HPV16	E1	TFPNEFPF	587	8		31606
HPV16	E1	TGCGWGFY	13	8		31607
HPV16	E1	TGCGWGFYVEA	13	11		31608
HPV16	E1	TGEDLVDF	44	8		31609
HPV16	E1	TGISNISEVY	324	10		31610
HPV16	E1	TIEKLLSK	289	8		31611
HPV16	E1	TLLQQYCLY	253	9		31612
HPV16	E1	TLLQQYCLYLH	253	11		31613
HPV16	E1	TMCRRHYKR	407	8		31614
HPV16	E1	TMCRRHYKRA	407	9		31615
HPV16	E1	TMCRRHYKRAEK	407	11		31616
HPV16	E1	TSNAKAAAML	200	10		31617
HPV16	E1	TSNAKAAAMLAK	200	11		31618
HPV16	E1	TSNINAGTDSR	565	11		31619
HPV16	E1	VDDGGDWK	433	8		31620
HPV16	E1	VDDSEIAY	370	8		31621
HPV16	E1	VDDSEIAYK	370	9		31622
HPV16	E1	VDDSEIAYKY	370	10		31623
HPV16	E1	VDDSEIAYKYA	370	11		31624
HPV16	E1	VDFIVNDNDY	49	10		31625
HPV16	E1	VDNNISPR	102	8		31626
HPV16	E1	VDNNISPRLK	102	10		31627
HPV16	E1	VDNNISPRLKA	102	11		31628
HPV16	E1	VFTFPNEF	585	8		31629
HPV16	E1	VFTFPNEFPF	585	10		31630
HPV16	E1	VICFVNSK	498	8		31631
HPV16	E1	VICFVNSKSH	498	10		31632
HPV16	E1	VICFVNSKSHF	498	11		31633
HPV16	E1	VLKTSNAK	197	8		31634
HPV16	E1	VLKTSNAKA	197	9		31635
HPV16	E1	VLKTSNAKAA	197	10		31636
HPV16	E1	VLLLVRYK	275	8		31637
HPV16	E1	VLLLVRYKCGK	275	11		31638
HPV16	E1	VLQHSFNDCTF	345	11		31639
HPV16	E1	VMFLRYQGVF	443	11		31640
HPV16	E1	VSFSELYR	217	8		31641
HPV16	E1	VSFSELYRPF	217	10		31642
HPV16	E1	VSFSELYRPFK	217	11		31643
HPV16	E1	VSMDEVKIR	545	8		31644

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E1	VVEKKTGDA	24	9		31645
HPV16	E1	VVFTFPNEF	584	9		31646
HPV16	E1	VVFTFPNEPF	584	11		31647
HPV16	E1	VVLLLVRY	274	8		31648
HPV16	E1	VVLLLVRYK	274	9	1.0000	31649
HPV16	E1	WFYVEAVVEK	18	10		31650
HPV16	E1	WFYVEAVVEKK	18	11		31651
HPV16	E1	WGMVLLVR	271	10		31652
HPV16	E1	WGMVLLLVRY	271	11		31653
HPV16	E1	WIKYRCDR	425	8		31654
HPV16	E1	WIKRQTVLQH	339	10		31655
HPV16	E1	WLQPLADA	509	8		31656
HPV16	E1	WLQPLADAK	509	9	0.0005	31657
HPV16	E1	YACLADTNSNA	379	11		31658
HPV16	E1	YCLYLHIQSLA	258	11		31659
HPV16	E1	YGAANTGK	476	8		31660
HPV16	E1	YGAANTGKSLF	476	11		31661
HPV16	E1	YGDTPFWIQ	333	10		31662
HPV16	E1	YGVSESLVR	215	10		31663
HPV16	E1	YIDDNLRNA	531	9		31664
HPV16	E1	YLIHQSLA	261	8		31665
HPV16	E1	YLNRLVVF	578	9		31666
HPV16	E1	YLNRLVVFTF	578	11		31667
HPV16	E1	YLTQAEETA	58	10		31668
HPV16	E1	YLTQAEETAH	58	11		31669
HPV16	E1	YVEAVVEK	20	8		31670
HPV16	E1	YVEAVVEKK	20	9		31671
HPV16	E2	AATHKAVA	220	9		31672
HPV16	E2	AFNSHKGR	270	9		31673
HPV16	E2	AIYKAREMGF	41	11		31674
HPV16	E2	ATHKAVA	221	8		31675
HPV16	E2	AVSKNKALQA	63	10		31676
HPV16	E2	AVSSTWHWTGH	314	11		31677
HPV16	E2	CAIYKAR	40	8		31678
HPV16	E2	CLRYRFKK	300	8		31679
HPV16	E2	CLRYRFKKH	300	9		31680
HPV16	E2	DAEKYSKNK	174	9		31681
HPV16	E2	DANTLKCLR	294	9		31682
HPV16	E2	DANTLKCLRY	294	10		31683
HPV16	E2	DANTLKCLRYR	294	11		31684
HPV16	E2	DDAEKYSK	173	8		31685
HPV16	E2	DDAEKYSKNK	173	10		31686
HPV16	E2	DGDICNTMH	122	9		31687
HPV16	E2	DGDICNTMHI	122	10		31688
HPV16	E2	DICNTMIY	124	8		31689
HPV16	E2	DLRDIIDY	25	8		31690

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E2	DLRDHIDYWK	25	10		31691
HPV16	E2	DLRDHIDYWKH	25	11		31692
HPV16	E2	DSAPILTA	263	8		31693
HPV16	E2	DSAPILTAF	263	9		31694
HPV16	E2	DSEWQRDQF	338	9		31695
HPV16	E2	DSTDLRDH	22	8		31696
HPV16	E2	DSTDLRDHIDY	22	11		31697
HPV16	E2	DSVDSAPILTA	260	11		31698
HPV16	E2	DTGNPCHTTK	246	10		31699
HPV16	E2	DVSLEVYLTA	96	10		31700
HPV16	E2	ECAIYKA	39	8		31701
HPV16	E2	ECAIYKAR	39	9		31702
HPV16	E2	EGIRTYFVQF	162	10		31703
HPV16	E2	EGIRTYFVQFK	162	11		31704
HPV16	E2	EGQVDYYGLY	149	10		31705
HPV16	E2	EGQVDYYGLYY	149	11		31706
HPV16	E2	EIRQHLA	209	8		31707
HPV16	E2	EIRQHLANH	209	10		31708
HPV16	E2	ELQLTLETHY	74	10		31709
HPV16	E2	EMGFKIINH	48	9		31710
HPV16	E2	ETIYNSQY	80	8		31711
HPV16	E2	ETQTTIQR	233	8		31712
HPV16	E2	ETQTTIQRPR	233	10		31713
HPV16	E2	EVSSPEIR	204	9		31714
HPV16	E2	EVSSPEIROH	204	11		31715
HPV16	E2	FDGDCNTMH	121	10		31716
HPV16	E2	FDGDCNTMHY	121	11		31717
HPV16	E2	FLSQVKIPK	346	9		31718
HPV16	E2	FVQFKDDA	168	8		31719
HPV16	E2	FVQFKDDAEK	168	10		31720
HPV16	E2	FVQFKDDAEKY	168	11		31721
HPV16	E2	GCIKKHGY	108	8		31722
HPV16	E2	GDANTLKCLR	293	10		31723
HPV16	E2	GDANTLKCLRY	293	11		31724
HPV16	E2	GDICNTMH	123	8		31725
HPV16	E2	GDICNTMHY	123	9		31726
HPV16	E2	GIRTYFVQF	163	9		31727
HPV16	E2	GIRTYFVQFK	163	10		31728
HPV16	E2	GLYYVHEGIR	156	10		31729
HPV16	E2	GTEETQTTIQR	230	11		31730
HPV16	E2	HGYTVEVQF	113	9		31731
HPV16	E2	HIDYWKIMR	29	9		31732
HPV16	E2	HINHQVVPTLA	53	11		31733
HPV16	E2	HIYICEEA	136	8		31734
HPV16	E2	HLANHPAA	214	8		31735
HPV16	E2	HLANHPAATH	214	10		31736

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E2	HLKGDANTLK	290	10		31737
HPV16	E2	HMRLECAIY	35	9		31738
HPV16	E2	HMRLECAIYY	35	10		31739
HPV16	E2	IIMRLECAIYYK	35	11		31740
HPV16	E2	HTTKLLHR	252	8		31741
HPV16	E2	IDYWVKHMR	30	8		31742
HPV16	E2	IIRQHLANH	210	9		31743
HPV16	E2	IIRQHLANHPA	210	11		31744
HPV16	E2	ILCPTSVF	193	8		31745
HPV16	E2	ILTAFNSSH	267	9		31746
HPV16	E2	ILTAFNSSHK	267	10		31747
HPV16	E2	IVILKGDA	288	8		31748
HPV16	E2	KAREMGFK	45	8		31749
HPV16	E2	KAREMGFKH	45	9		31750
HPV16	E2	KCLRYRFK	299	8		31751
HPV16	E2	KCLRYRFKK	299	9		31752
HPV16	E2	KCLRYRFKKH	299	10		31753
HPV16	E2	KDDAEKYSK	172	9		31754
HPV16	E2	KDDAEKYSKNK	172	11		31755
HPV16	E2	KGDANTLK	292	8		31756
HPV16	E2	KGDANTLKCLR	292	11		31757
HPV16	E2	KLLHRDSVDSA	255	11		31758
HPV16	E2	KSAIVTLTY	329	9		31759
HPV16	E2	KTITVSTGF	354	9		31760
HPV16	E2	LANHPAATII	215	9		31761
HPV16	E2	LANHPAATHTK	215	11		31762
HPV16	E2	LAVSKNKA	62	8		31763
HPV16	E2	LAVSKNKALQA	62	11		31764
HPV16	E2	LCQRLNVQDK	4	11		31765
HPV16	E2	LLHRDSVDSA	256	10		31766
HPV16	E2	LSQVKIPK	347	8		31767
HPV16	E2	LTAFNSSH	268	8		31768
HPV16	E2	LTAFNSSHK	268	9		31769
HPV16	E2	LTAFNSSHKGR	268	11		31770
HPV16	E2	LTAPTGCIC	103	9		31771
HPV16	E2	LTAPTGCICK	103	10		31772
HPV16	E2	LTAPTGCICKH	103	11		31773
HPV16	E2	LTLETVNSQY	77	11		31774
HPV16	E2	LYDSEWQR	335	9		31775
HPV16	E2	MGFKHINH	49	8		31776
HPV16	E2	NCNSNTTPIVH	280	11		31777
HPV16	E2	NDSTDLRDH	21	9		31778
HPV16	E2	NSNTTPVII	282	9		31779
HPV16	E2	NSNTTPVHLK	282	11		31780
HPV16	E2	NSQYSNEK	84	8		31781
HPV16	E2	NCLKLRY	296	8		31782

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E2	NTLKCLRYR	296	9		31783
HPV16	E2	NTLKCLRYRF	296	10		31784
HPV16	E2	NTLKCLRYRFK	296	11		31785
HPV16	E2	NTMHTNWT	127	10		31786
HPV16	E2	NTTPIVHLK	284	9		31787
HPV16	E2	NVCQDKILTH	9	10		31788
HPV16	E2	NVCQDKILTHY	9	11		31789
HPV16	E2	PAATHKA	219	8		31790
HPV16	E2	PAATHKAVA	219	10		31791
HPV16	E2	PCHTTKLLH	250	9		31792
HPV16	E2	PCHTTKLLHR	250	10		31793
HPV16	E2	PDTGNPCH	245	8		31794
HPV16	E2	PDTGNPCHTTK	245	11		31795
HPV16	E2	PILTAFNSSH	266	10		31796
HPV16	E2	PILTAFNSSHK	266	11		31797
HPV16	E2	PIVHLKGDA	287	9		31798
HPV16	E2	PTGCIKKH	106	8		31799
HPV16	E2	PTGCIKKHY	106	10		31800
HPV16	E2	PTGCIKKHK	60	9		31801
HPV16	E2	PTLAVSKNK	60	10		31802
HPV16	E2	PTLAVSKNKA	12	8		31803
HPV16	E2	QDKILTHY	95	8		31804
HPV16	E2	QDVSLEVY	95	11		31805
HPV16	E2	QDVSLEVYLT	95	11		31806
HPV16	E2	QFDGDCNTMH	120	8		31807
HPV16	E2	QFKDDAEK	170	9		31808
HPV16	E2	QFKDDAEKY	170	11		31809
HPV16	E2	QFKDDAEKYSK	345	10		31810
HPV16	E2	QFLSQVKIPK	76	8		31811
HPV16	E2	QLTLETY	235	8		31812
HPV16	E2	QTTIQRPR	151	8		31813
HPV16	E2	QVDYYGLY	151	9		31814
HPV16	E2	QVDYYGLYVH	151	11		31815
HPV16	E2	QVILCPTSVF	191	10		31816
HPV16	E2	QVVPTLAVSK	57	10		31817
HPV16	E2	RDHIDYWK	27	8		31818
HPV16	E2	RDHIDYWKH	27	9		31819
HPV16	E2	RDHIDYWKHMR	27	11		31820
HPV16	E2	RDQFLSQVK	343	9		31821
HPV16	E2	RFKKHCTLY	304	9		31822
HPV16	E2	RFKKHCTLYTA	304	11		31823
HPV16	E2	RLECAIYY	37	8		31824
HPV16	E2	RLECAIYYK	37	9		31825
HPV16	E2	RLECAIYYKA	37	10		31826
HPV16	E2	RLECAIYYKAR	37	11		31827
HPV16	E2	RLNVCQDK	7	8		31828

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E2	RSEPTGNPCH	242	11		31829
HPV16	E2	RTYFVQFK	165	8		31830
HPV16	E2	RTYFVQFKDDA	165	11		31831
HPV16	E2	SAIVTLTY	330	8		31832
HPV16	E2	SAPILTAF	264	8		31833
HPV16	E2	SLEVYLTA	98	8		31834
HPV16	E2	SSPEIRQH	206	9		31835
HPV16	E2	SSPEIRQHILA	206	11		31836
HPV16	E2	SSTWHWTGH	316	9		31837
HPV16	E2	STDLRDHIDY	23	10		31838
HPV16	E2	STWHWTGH	317	8		31839
HPV16	E2	STWHWTGHNVK	317	11		31840
HPV16	E2	SVDSAPILTA	261	10		31841
HPV16	E2	SVDSAPILTAF	261	11		31842
HPV16	E2	SVTVVEGVQVDY	144	11		31843
HPV16	E2	TAFNSSHK	269	8		31844
HPV16	E2	TAFNSSHKGR	269	10		31845
HPV16	E2	TAPTGCIC	104	8		31846
HPV16	E2	TAPTGCICK	104	9		31847
HPV16	E2	TAPTGCICKKH	104	10		31848
HPV16	E2	TAVSSTWH	313	8		31849
HPV16	E2	TDLRDHIDY	24	9		31850
HPV16	E2	TDLRDHIDYWK	24	11		31851
HPV16	E2	TGCIKKHG	107	9		31852
HPV16	E2	TGHNVKHK	322	8		31853
HPV16	E2	TGHNVKHKSA	322	10		31854
HPV16	E2	TGNPCHTTK	247	9		31855
HPV16	E2	TITVSTGF	355	8		31856
HPV16	E2	TIYNSQYSNEK	81	11		31857
HPV16	E2	TLAVSKNK	61	8		31858
HPV16	E2	TLAVSKNKA	61	9		31859
HPV16	E2	TLETYNSQY	78	10		31860
HPV16	E2	TLKCLRYR	297	8		31861
HPV16	E2	TLKCLRYRF	297	9		31862
HPV16	E2	TLKCLRYRFK	297	10		31863
HPV16	E2	TLKCLRYRFKK	297	11		31864
HPV16	E2	TLQDVSLEVY	93	10		31865
HPV16	E2	TLTYDSEWQR	334	10		31866
HPV16	E2	TLTYAVSSTWH	310	11		31867
HPV16	E2	TMHYTNWTH	128	9		31868
HPV16	E2	TMHYTNWTHIY	128	11		31869
HPV16	E2	TTPIVHLK	285	8		31870
HPV16	E2	TTPIVHLKGDA	285	11		31871
HPV16	E2	TVVEGVQVDY	146	9		31872
HPV16	E2	TVVEGVQVDYY	146	10		31873
HPV16	E2	VCQDKILTH	10	9		31874

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E2	VCODKILTHY	10	10		31875
HPV16	E2	VDSAPILTA	262	9		31876
HPV16	E2	VDSAPILTAF	262	10		31877
HPV16	E2	VDYYGLYY	152	8		31878
HPV16	E2	VDYYGLYYVH	152	10		31879
HPV16	E2	VILCPTSVF	192	9		31880
HPV16	E2	VSKNKALQA	64	9		31881
HPV16	E2	VSLEVYLT	97	9		31882
HPV16	E2	VSSPEIIR	205	8		31883
HPV16	E2	VSSPEIIRQH	205	10		31884
HPV16	E2	VSSTWHWTCH	315	10		31885
HPV16	E2	VTLYTDSWQR	333	11		31886
HPV16	E2	VTVEGQVDY	145	10		31887
HPV16	E2	VTVEGQVDYY	145	11		31888
HPV16	E2	VVEGQVDY	147	8		31889
HPV16	E2	VVEGQVDYY	147	9		31890
HPV16	E2	VVPTLAVSK	58	9		31891
HPV16	E2	VVPTLAVSKNK	58	11		31892
HPV16	E2	WTGHNVKH	321	8		31893
HPV16	E2	WTGHNVKHK	321	9		31894
HPV16	E2	WTGHNVKHKS	321	11		31895
HPV16	E2	WTHYICEEA	134	10		31896
HPV16	E2	WTLQDVSLEVY	92	11		31897
HPV16	E2	YDSEWQRDQF	337	10		31898
HPV16	E2	YFVQFKDDA	167	9		31899
HPV16	E2	YFVQFKDDAEK	167	11		31900
HPV16	E2	YGLYYVHEGIR	155	11		31901
HPV16	E2	YLTAPTGCCK	102	10		31902
HPV16	E2	YLTAPTGCCK	102	11		31903
HPV16	E2	YSKNKVVWEVH	178	10		31904
HPV16	E2	YSKNKVVWEVHA	178	11		31905
HPV16	E2	YTAVSSTWH	312	9		31906
HPV16	E2	YTNWTHY	131	8		31907
HPV16	E2	YVHEGIRTY	159	9		31908
HPV16	E2	YVHEGIRTYF	159	10		31909
HPV16	E5	AASAFRCF	53	8		31910
HPV16	E5	AASAFRCFVY	53	11		31911
HPV16	E5	AFRCFVY	56	8		31912
HPV16	E5	AFRCFVYIIF	56	11		31913
HPV16	E5	ASAFRCFVY	54	10		31914
HPV16	E5	ASTLLACF	7	9		31915
HPV16	E5	CFIVYIIF	59	8		31916
HPV16	E5	CFIVYIIFVY	59	10		31917
HPV16	E5	CVLLCVCLLIR	20	11		31918
HPV16	E5	DTASTLLA	5	9		31919
HPV16	E5	DTASTLLACF	5	11		31920

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E5	FIVYIIFVY	60	9		31921
HPV16	E5	FLIHTHAR	72	8		31922
HPV16	E5	FLIHTHARF	72	9		31923
HPV16	E5	FVYIPLFLIH	66	10		31924
HPV16	E5	IFVYIPLF	65	8		31925
HPV16	E5	IFVYIPLFLIH	65	11		31926
HPV16	E5	IIFVYIPLF	64	9		31927
HPV16	E5	ILVLLWITA	43	11		31928
HPV16	E5	ILVLLWITA	44	10		31929
HPV16	E5	ILVLLWITAA	44	11		31930
HPV16	E5	ITAASAFR	51	8		31931
HPV16	E5	ITAASAFRCF	51	10		31932
HPV16	E5	IVYIIFVY	61	8		31933
HPV16	E5	LACFLLCF	12	8		31934
HPV16	E5	LCVCLLR	23	8		31935
HPV16	E5	LDTASTLLA	4	10		31936
HPV16	E5	LFLIHTHA	71	8		31937
HPV16	E5	LFLIHTHAR	71	9		31938
HPV16	E5	LFLIHTHARF	71	10		31939
HPV16	E5	LIHTHARF	73	8		31940
HPV16	E5	LLACFLLCF	11	9		31941
HPV16	E5	LLCVCLLR	22	9		31942
HPV16	E5	LLLSVSTY	32	8		31943
HPV16	E5	LLWITAA	47	8		31944
HPV16	E5	LLWITAAASA	47	10		31945
HPV16	E5	LLWITAAASAF	47	11		31946
HPV16	E5	LLWITAAASA	48	9		31947
HPV16	E5	LLWITAAASAF	48	10		31948
HPV16	E5	LLWITAAASAFR	48	11		31949
HPV16	E5	LVLLWITA	45	9		31950
HPV16	E5	LVLLWITAA	45	10		31951
HPV16	E5	NLDTASTLLA	3	11		31952
HPV16	E5	PLFLIHTH	70	8		31953
HPV16	E5	PLFLIHTHA	70	9		31954
HPV16	E5	PLFLIHTHAR	70	10		31955
HPV16	E5	PLFLIHTHARF	70	11		31956
HPV16	E5	PLLSVSTY	31	9		31957
HPV16	E5	RCFIVYIIF	58	9		31958
HPV16	E5	RCFIVYIIFVY	58	11		31959
HPV16	E5	SAFRCFIVY	55	9		31960
HPV16	E5	STLLACF	8	8		31961
HPV16	E5	TAASAFRCF	52	9		31962
HPV16	E5	TASTLLA	6	8		31963
HPV16	E5	TASTLLACF	6	10		31964
HPV16	E5	TLLACFLLCF	10	10		31965
HPV16	E5	TTLLACFLLCF	9	11		31966

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E5	VLLVCVLLIR	21	10		31967
HPV16	E5	VLLWITA	46	8		31968
HPV16	E5	VLLWITAA	46	9		31969
HPV16	E5	VLLWITAASA	46	11		31970
HPV16	E5	WITAASAF	50	8		31971
HPV16	E5	WITAASAFR	50	9		31972
HPV16	E5	WITAASAFRCF	50	11		31973
HPV16	E5	YIIFVYIPLF	63	10		31974
HPV16	E5	YIPLFLIH	68	8		31975
HPV16	E5	YIPLFLIHTH	68	10		31976
HPV16	E5	YIPLFLIHTHA	68	11		31977
HPV16	E6	AFRDLICIVY	53	9	0.0052	31978
HPV16	E6	AFRDLICIVYR	53	10		31979
HPV16	E6	AMFQDPQERPR	7	9	0.0170	31980
HPV16	E6	AMFQDPQER	7	11		31981
HPV16	E6	AVCDKCLK	68	8	0.0053	31982
HPV16	E6	AVCDKCLKF	68	9	0.0002	31983
HPV16	E6	AVCDKCLKFY	68	10	0.0052	31984
HPV16	E6	CCRSSRTR	146	8		31985
HPV16	E6	CCRSSRTRR	146	9	0.0003	31986
HPV16	E6	CDKCLKFY	70	8		31987
HPV16	E6	CDKCLKFYSK	70	10		31988
HPV16	E6	CIVYRDGNPY	58	10	0.0026	31989
HPV16	E6	CIVYRDGNPYA	58	11		31990
HPV16	E6	CLKFYSKISEY	73	11		31991
HPV16	E6	CMSCCRSSR	143	9	0.0033	31992
HPV16	E6	CMSCCRSSRTR	143	11		31993
HPV16	E6	CTELQTTIH	23	9	0.0002	31994
HPV16	E6	CVYCKQQLLR	37	10	0.0001	31995
HPV16	E6	CVYCKQQLRR	37	11		31996
HPV16	E6	DFAFRDLICIVY	51	11		31997
HPV16	E6	DGNPYAVCDK	63	10		31998
HPV16	E6	DIILECVY	32	8		31999
HPV16	E6	DIILECVYCK	32	10	0.0065	32000
HPV16	E6	DLIRINCQK	105	11		32001
HPV16	E6	ECVYCKQQLLR	36	11		32002
HPV16	E6	EVYDFAR	48	8	0.0004	32003
HPV16	E6	FAFRDLICIVY	52	10		32004
HPV16	E6	FAFRDLICIVYR	52	11		32005
HPV16	E6	GTTLEQY	92	8		32006
HPV16	E6	GTTLEQYQNK	92	10	0.0002	32007
HPV16	E6	HIILECVY	31	9	0.0002	32008
HPV16	E6	HIILECVYCK	31	11		32009
HPV16	E6	HLDKKQRF	125	8		32010
HPV16	E6	HLDKKQRFH	125	9	0.0009	32011
HPV16	E6	HIILECVYCK	33	9	0.0016	32012

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E6	ILECVYCK	34	8		32013
HPV16	E6	ISEYRHYCY	80	9	0.0001	32014
HPV16	E6	IVYRDGNPY	59	9	0.1500	32015
HPV16	E6	IVYRDGNPYA	59	10		32016
HPV16	E6	KCLKFYSK	72	8		32017
HPV16	E6	KFYSKISEY	75	9	0.0015	32018
HPV16	E6	KFYSKISEYR	75	10	0.0067	32019
HPV16	E6	KFYSKISEYRH	75	11		32020
HPV16	E6	KISEYRHY	79	8		32021
HPV16	E6	KISEYRHYCY	79	10	0.0043	32022
HPV16	E6	LCIVYRDGNPY	57	11		32023
HPV16	E6	LCPEEKQR	117	8		32024
HPV16	E6	LCPEEKQRH	117	9	0.0003	32025
HPV16	E6	LCTELQTTIH	22	10		32026
HPV16	E6	LDKKQRFH	126	8		32027
HPV16	E6	LDKKQRFHINIR	126	11		32028
HPV16	E6	LLRCINCQK	107	9		32029
HPV16	E6	LLRCINCQK	106	10	0.0025	32030
HPV16	E6	LLRREYDF	44	9	0.0210	32031
HPV16	E6	LLRREYDF	44	10		32032
HPV16	E6	LLRREYDFAF	44	11		32033
HPV16	E6	MFQDPQER	8	8		32034
HPV16	E6	MFQDPQERPR	8	10		32035
HPV16	E6	MFQDPQERPRK	8	11		32036
HPV16	E6	MSCCRSSR	144	8		32037
HPV16	E6	MSCCRSSRTR	144	10		32038
HPV16	E6	MSCCRSSRTRR	144	11		32039
HPV16	E6	NCQKPLCPEEK	112	11		32040
HPV16	E6	NIRGRWTGR	134	9	0.0014	32041
HPV16	E6	PLCDLLIR	102	8		32042
HPV16	E6	PLCPEEKQR	116	9	0.0002	32043
HPV16	E6	PLCPEEKQRH	116	10		32044
HPV16	E6	QDPQERPR	10	8		32045
HPV16	E6	QDPQERPRK	10	9		32046
HPV16	E6	QLCTELQTTIH	21	11		32047
HPV16	E6	QLLRREYV	43	8		32048
HPV16	E6	QLLRREYDF	43	10		32049
HPV16	E6	QLLRREYDF	43	11		32050
HPV16	E6	RCMSCCRSSR	142	10		32051
HPV16	E6	RDGNPYAVCDK	62	11		32052
HPV16	E6	RDLCIVYR	55	8		32053
HPV16	E6	RFHNIRGR	131	8		32054
HPV16	E6	RTAMFQDPQER	5	11		32055
HPV16	E6	SCCRSSRTR	145	9	0.0003	32056
HPV16	E6	SCCRSSRTRR	145	10		32057
HPV16	E6	SLYGTITLEQQY	89	11		32058

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Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E6	TAMFQDPQER	6	10		32059
HPV16	E6	TGRCMSCCR	140	9	0.0003	32060
HPV16	E6	TIHDIIECVY	29	11		32061
HPV16	E6	TLEQQYNK	94	8		32062
HPV16	E6	TTLEQQYNK	93	9	0.0100	32063
HPV16	E6	VCDKCLKF	69	8		32064
HPV16	E6	VCDKCLKFY	69	9	0.0002	32065
HPV16	E6	VCDKCLKFYSK	69	11		32066
HPV16	E6	WTGRCMSCCR	139	10	0.0003	32067
HPV16	E6	YAVCDKCLK	67	9	0.0003	32068
HPV16	E6	YAVCDKCLKF	67	10		32069
HPV16	E6	YAVCDKCLKFY	67	11		32070
HPV16	E6	YCKQQLLR	39	8		32071
HPV16	E6	YCKQQLRR	39	9	0.0003	32072
HPV16	E6	YGTLEQQY	91	9		32073
HPV16	E6	YGTLEQQYNK	91	11		32074
HPV16	E6	YSKISEYR	77	8		32075
HPV16	E6	YSKISEYRH	77	9		32076
HPV16	E6	YSKISEYRHY	77	10	0.0001	32077
HPV16	E7	AGQAEPR	42	8		32078
HPV16	E7	AGQAEPRDRA	42	9		32079
HPV16	E7	AGQAEPRDAH	42	10		32080
HPV16	E7	AGQAEPRDAH	42	11		32081
HPV16	E7	CCKCDSTLR	58	9	0.0003	32082
HPV16	E7	CVQSTHVDIR	68	10	0.0049	32083
HPV16	E7	DGFAGQAEPR	39	11		32084
HPV16	E7	DLQPETDLY	14	10	0.0002	32085
HPV16	E7	DTPTLHEY	4	8		32086
HPV16	E7	EDEIDGPA	35	8		32087
HPV16	E7	EDEIDGPAGQA	35	11		32088
HPV16	E7	EIDGPAGQA	37	9		32089
HPV16	E7	ETDLYCY	18	8	0.0002	32090
HPV16	E7	FCCKCDSTLR	57	10		32091
HPV16	E7	GDTPTLHEY	3	9		32092
HPV16	E7	GIVCPICSQK	88	10	0.0003	32093
HPV16	E7	HGDTPTLH	2	8		32094
HPV16	E7	HGDTPTLHEY	2	10	0.0001	32095
HPV16	E7	IDGPAGQA	38	8		32096
HPV16	E7	IVCPICSQK	89	9	0.0077	32097
HPV16	E7	LCVQSTHVDIR	67	11		32098
HPV16	E7	LDLPETDLY	13	11		32099
HPV16	E7	LGIVCPICSQK	87	11		32100
HPV16	E7	NIVTFCK	53	8		32101
HPV16	E7	PAGQAEPR	41	9		32102
HPV16	E7	PAGQAEPRDRA	41	10		32103
HPV16	E7	PAGQAEPRDAH	41	11		32104

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A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	E7	PDRAHYNIVTF	47	11		32105
HPV16	E7	QAEPRDAH	44	8		32106
HPV16	E7	QAEPRAHY	44	9	0.0002	32107
HPV16	E7	QSTHVDIR	70	8		32108
HPV16	E7	RAHYNIVTF	49	9		32109
HPV16	E7	RLCVQSTH	66	8		32110
HPV16	E7	STLRLCVQSTH	63	11		32111
HPV16	E7	TFCCKCDSTLR	56	11		32112
HPV16	E7	TLRLCVQSTH	64	10		32113
HPV16	E7	VPICQSK	90	8		32114
HPV16	L1	AAISTSETTY	372	10		32115
HPV16	L1	AAISTSETTYK	372	11		32116
HPV16	L1	AANAGVDNR	162	9		32117
HPV16	L1	ACQKHTPPA	453	9		32118
HPV16	L1	ACQKHTPPAPK	453	11		32119
HPV16	L1	ACVGVVEGR	127	9		32120
HPV16	L1	ADLDQFPLGR	483	10		32121
HPV16	L1	ADLDQFPLGRK	483	11		32122
HPV16	L1	ADVMTYIH	411	8		32123
HPV16	L1	AGLKAKPK	498	8		32124
HPV16	L1	AGLKAKPKF	498	9		32125
HPV16	L1	AGTSRLLA	63	8		32126
HPV16	L1	AGTSRLLA VGH	63	11		32127
HPV16	L1	AIACQKHTPPA	451	11		32128
HPV16	L1	AISETTY	373	9		32129
HPV16	L1	AISTSETTYK	373	10		32130
HPV16	L1	AMDFTTLOA	233	9		32131
HPV16	L1	AMDFTTLOANK	233	11		32132
HPV16	L1	ASAYAANA	158	8		32133
HPV16	L1	AVGENVPDDL Y	292	11		32134
HPV16	L1	AVGHPYFPK	70	10		32135
HPV16	L1	AVGHPYFPKK	70	11		32136
HPV16	L1	CAAISETTY	371	11		32137
HPV16	L1	CTSICKYPDY	251	10		32138
HPV16	L1	CVGVVEGR	128	8		32139
HPV16	L1	DAQIFNKPY	329	9		32140
HPV16	L1	DDTENASA	153	8		32141
HPV16	L1	DDTENASAY	153	9		32142
HPV16	L1	DDTENASAYA	153	10		32143
HPV16	L1	DDTENASAYAA	153	11		32144
HPV16	L1	DFTTLQANK	235	9		32145
HPV16	L1	DGDMVDITGF	223	9		32146
HPV16	L1	DGDMVDITGFGA	223	11		32147
HPV16	L1	DICTSICK	249	8		32148
HPV16	L1	DICTSICKY	249	9		32149
HPV16	L1	DLDDQFPLGR	484	9		32150

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A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	DLDPPLGRK	484	10		32151
HPV16	L1	DLDPPLGRKF	484	11		32152
HPV16	L1	DLQFIQLCK	397	10		32153
HPV16	L1	DLYIKSGSTA	300	11		32154
HPV16	L1	DMVDITGFA	225	9		32155
HPV16	L1	DSLFFYLRL	270	8		32156
HPV16	L1	DSLFFYLRR	270	9		32157
HPV16	L1	DTENASAY	154	8		32158
HPV16	L1	DTENASAYA	154	9		32159
HPV16	L1	DTENASAYAA	154	10		32160
HPV16	L1	DTFGAMDF	228	9		32161
HPV16	L1	DTQLVWA	120	8		32162
HPV16	L1	DTSYNPDQTR	113	11		32163
HPV16	L1	DTYRFVTSQA	442	10		32164
HPV16	L1	DVNYYHIF	17	8		32165
HPV16	L1	DVNYYHIF	17	9		32166
HPV16	L1	ECISMDYK	171	8		32167
HPV16	L1	EDPLKKYTF	464	9		32168
HPV16	L1	EDTYRFVTSQA	441	11		32169
HPV16	L1	ETTYKNTNF	378	9		32170
HPV16	L1	ETTYKNTNFK	378	10		32171
HPV16	L1	EVNLKEKF	474	8		32172
HPV16	L1	EVNLKEKFS	474	10		32173
HPV16	L1	FFYLRREQMF	273	10		32174
HPV16	L1	FGAMDFTTLQA	231	11		32175
HPV16	L1	FGFPDTSF	109	8		32176
HPV16	L1	FGFPDTSFY	109	9		32177
HPV16	L1	FIYLVITCY	5	10		32178
HPV16	L1	FLLQAGLK	494	8		32179
HPV16	L1	FLLQAGLKA	494	9		32180
HPV16	L1	FLLQAGLKAK	494	10		32181
HPV16	L1	FSADLDQF	481	8		32182
HPV16	L1	FTLGKRA	506	8		32183
HPV16	L1	FTTLQANK	236	8		32184
HPV16	L1	FVRHLFNR	282	8		32185
HPV16	L1	FVRHLFNRA	282	9		32186
HPV16	L1	FVRHLFNRA	282	11		32187
HPV16	L1	FVTSQAIA	446	8		32188
HPV16	L1	FVTSQAIA	446	11		32189
HPV16	L1	FVTSQAIA	446	11		32189
HPV16	L1	FVTVDTR	356	9		32190
HPV16	L1	GAMDFTLQA	232	10		32191
HPV16	L1	GCKPPIGE	186	9		32192
HPV16	L1	GDMVDITGF	224	8		32193
HPV16	L1	GDMVDITGFA	224	10		32194
HPV16	L1	GDSLFFYLRL	269	9		32195
HPV16	L1	GDSLFFYLRL	269	10		32196

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A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	GFPDTSFY	110	8		32197
HPV16	L1	GGTLEDTY	437	8		32198
HPV16	L1	GGTLEDTYR	437	9		32199
HPV16	L1	GGTLEDTYRF	437	10		32200
HPV16	L1	GICWGNQLF	348	9		32201
HPV16	L1	GISGHPLLNK	142	10		32202
HPV16	L1	GLKAKPKF	499	8		32203
HPV16	L1	GLQYRVFR	93	8		32204
HPV16	L1	GLQYRVFRIH	93	10		32205
HPV16	L1	GSGSTANLA	305	9		32206
HPV16	L1	GSMVTSDA	323	8		32207
HPV16	L1	GSMVTSDAQIF	323	11		32208
HPV16	L1	GSPTNVA	198	8		32209
HPV16	L1	GSTANLASSNY	307	11		32210
HPV16	L1	GTTLEDTYR	438	8		32211
HPV16	L1	GTTLEDTYRF	438	9		32212
HPV16	L1	GTSRLLAUGH	64	10		32213
HPV16	L1	HAGTSRLLA	62	9		32214
HPV16	L1	HGEEDLQF	392	9		32215
HPV16	L1	HGEEDLQFIF	392	11		32216
HPV16	L1	HLFNRAGA	285	8		32217
HPV16	L1	HLDPNKF	102	8		32218
HPV16	L1	HLDPNKF	102	10		32219
HPV16	L1	HLDPNKF	102	10		32220
HPV16	L1	IACQKHTPPA	452	9		32221
HPV16	L1	ICKYPDYIK	254	8		32222
HPV16	L1	ICTSICKY	250	11		32223
HPV16	L1	ICTSICKYPDY	250	11		32224
HPV16	L1	ICWGNQLF	349	8		32225
HPV16	L1	IFNKPYWLQR	332	10		32226
HPV16	L1	IFNKPYWLQRA	332	11		32227
HPV16	L1	IFQLCKITLTA	401	11		32228
HPV16	L1	IGCKPPIGE	185	10		32229
HPV16	L1	ILVPKVSGLQY	86	11		32230
HPV16	L1	ISGHPLLNK	143	9		32231
HPV16	L1	ISTSETTY	374	8		32232
HPV16	L1	ISTSETTYK	374	9		32233
HPV16	L1	ITCYENDVNVY	11	11		32234
HPV16	L1	ITLTADVMY	407	10		32235
HPV16	L1	KAKPKFTLGK	501	10		32236
HPV16	L1	KAKPKFTLGKR	501	11		32237
HPV16	L1	KFGFPDTSF	108	9		32238
HPV16	L1	KFGFPDTSFY	108	10		32239
HPV16	L1	KFLAQAGLK	493	9		32240
HPV16	L1	KFLAQAGLKA	493	10		32241
HPV16	L1	KFLAQAGLKAK	493	11		32242
HPV16	L1	KFSADLDQF	480	9		

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A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	KFTLGKRR	505	8		32243
HPV16	L1	KFTLGKRRKA	505	9		32244
HPV16	L1	KGGSTANLA	304	10		32245
HPV16	L1	KGSPCTNVA	197	9		32246
HPV16	L1	KITLTADVMTY	406	11		32247
HPV16	L1	KLDDTENNA	151	8		32248
HPV16	L1	KLDDTENASA	151	10		32249
HPV16	L1	KLDDTENASAY	151	11		32250
HPV16	L1	KVSGLOYR	90	8		32251
HPV16	L1	KVSGLOYRVF	90	10		32252
HPV16	L1	KVSGLOYRVFR	90	11		32253
HPV16	L1	KVSTDEY	46	8		32254
HPV16	L1	KVSTDEYVA	46	10		32255
HPV16	L1	KVSTDEYVAR	46	11		32256
HPV16	L1	LAVGHPYF	69	8		32257
HPV16	L1	LAVGHPYFPIK	69	11		32258
HPV16	L1	LCKITLTA	404	8		32259
HPV16	L1	LDDTENASA	152	9		32260
HPV16	L1	LDDTENASAY	152	10		32261
HPV16	L1	LDDTENASAYA	152	11		32262
HPV16	L1	LDICTSICK	248	9		32263
HPV16	L1	LDICTSICKY	248	10		32264
HPV16	L1	LDQFPLGR	485	8		32265
HPV16	L1	LDQFPLGRK	485	9		32266
HPV16	L1	LDQFPLGRKF	485	10		32267
HPV16	L1	LFYLRREQMF	272	11		32268
HPV16	L1	LFVTVDVTR	355	10		32269
HPV16	L1	LGRKFLQA	490	9		32270
HPV16	L1	LGVGISGH	139	8		32271
HPV16	L1	LIGCKPPIGEH	184	11		32272
HPV16	L1	LLAVGHPY	68	8		32273
HPV16	L1	LLAVGHPYF	68	9		32274
HPV16	L1	LLNKLDDETENA	148	11		32275
HPV16	L1	LLQAGLKA	495	8		32276
HPV16	L1	LLQAGLKAK	495	9		32277
HPV16	L1	LLQAGLKAKPK	495	11		32278
HPV16	L1	LTADVMTY	409	8		32279
HPV16	L1	LTADVMTYIH	409	10		32280
HPV16	L1	LVPKVSGLQY	87	10		32281
HPV16	L1	LVPKVSGLQYR	87	11		32282
HPV16	L1	MDFTTLQA	234	8		32283
HPV16	L1	MDFTTLQANK	234	10		32284
HPV16	L1	MFVRHLENR	281	9		32285
HPV16	L1	MFVRHLENRA	281	10		32286
HPV16	L1	MSLWLPSEA	27	9		32287
HPV16	L1	MVDTGFGA	226	8		32288

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A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	MVDGFGAMDF	226	11		32289
HPV16	L1	MVSEPYGDSL	263	11		32290
HPV16	L1	MVTSDAQIF	325	9		32291
HPV16	L1	MVTSDAQIFNK	325	11		32292
HPV16	L1	NASAYAANA	157	9		32293
HPV16	L1	NDVNVYHIF	16	9		32294
HPV16	L1	NDVNVYHIF	16	10		32295
HPV16	L1	NFKEYLRH	385	8		32296
HPV16	L1	NGICWGNQLF	347	10		32297
HPV16	L1	NIYHAGTSR	58	10		32298
HPV16	L1	NLASSNYF	311	8		32299
HPV16	L1	NLKEKFA	476	8		32300
HPV16	L1	NSTILEDWNF	421	10		32301
HPV16	L1	NTNFKEYLR	383	9		32302
HPV16	L1	NTNFKEYLRH	383	10		32303
HPV16	L1	NVPDDLK	296	9		32304
HPV16	L1	PAPKEDPLK	460	9		32305
HPV16	L1	PAPKEDPLKK	460	10		32306
HPV16	L1	PAPKEDPLKKY	460	11		32307
HPV16	L1	PDPNKFGE	104	8		32308
HPV16	L1	PDTQRLVWA	119	9		32309
HPV16	L1	PDYIKMVSEPY	258	11		32310
HPV16	L1	PGGTLEDY	436	9		32311
HPV16	L1	PGGTLEDYR	436	10		32312
HPV16	L1	PGGTLEDYR	436	11		32313
HPV16	L1	PIGEHWGK	190	8		32314
HPV16	L1	PIKKPNNK	77	9		32315
HPV16	L1	PLDICTSICK	247	10		32316
HPV16	L1	PLDICTSICKY	247	11		32317
HPV16	L1	PLGRKFLQA	489	10		32318
HPV16	L1	PLGVGISGH	138	9		32319
HPV16	L1	PSGSMVTSDA	321	10		32320
HPV16	L1	PTSSSTSTA	515	10		32321
HPV16	L1	PTSSSTSTAK	515	11		32322
HPV16	L1	PVSKVSTDEY	43	11		32323
HPV16	L1	QAGLKAKPK	497	9		32324
HPV16	L1	QAGLKAKPKF	497	10		32325
HPV16	L1	QAIACQKII	450	8		32326
HPV16	L1	QDGMVDTGF	222	10		32327
HPV16	L1	QFIQLCK	399	8		32328
HPV16	L1	QFPLGRKF	487	8		32329
HPV16	L1	QIFNKPYWLQR	331	11		32330
HPV16	L1	QLCKITLTA	403	9		32331
HPV16	L1	QLCLIGCK	181	8		32332
HPV16	L1	QLFVTVVDTTR	354	11		32333
HPV16	L1	QMFVRHLF	280	8		32334

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	QMFVRHLFNR	280	10		32335
HPV16	L1	QMFVRHLFNRA	280	11		32336
HPV16	L1	QMSLWLPSEA	26	10		32337
HPV16	L1	QTQLCLIGCK	179	10		32338
HPV16	L1	RFVTSQAIA	445	9		32339
HPV16	L1	RHILPDPNK	100	9		32340
HPV16	L1	RHILPDPNKF	100	10		32341
HPV16	L1	RLLAAGHPY	67	9		32342
HPV16	L1	RLLAAGHPYF	67	10		32343
HPV16	L1	RSTNMSLCA	364	9		32344
HPV16	L1	RSTNMSLCAA	364	10		32345
HPV16	L1	RTNIYYHA	56	8		32346
HPV16	L1	SADLDQFPLGR	482	11		32347
HPV16	L1	SDAQIFNK	328	8		32348
HPV16	L1	SDAQIFNKPY	328	10		32349
HPV16	L1	SFYNPDTQR	115	9		32350
HPV16	L1	SGHPLLNK	144	8		32351
HPV16	L1	SGLQYRVF	92	8		32352
HPV16	L1	SGLQYRVFR	92	9		32353
HPV16	L1	SGLQYRVFRIH	92	11		32354
HPV16	L1	SGSMVTSDA	322	9		32355
HPV16	L1	SGSTANLA	306	8		32356
HPV16	L1	SICKYPDY	253	8		32357
HPV16	L1	SICKYPDYIK	253	10		32358
HPV16	L1	SLFFYLRR	271	8		32359
HPV16	L1	SLWLPSEA	28	8		32360
HPV16	L1	SLWLPSEATVY	28	11		32361
HPV16	L1	SMVTSDAQIF	324	10		32362
HPV16	L1	SSTSTAK	518	8		32363
HPV16	L1	SSTSTAKR	518	9		32364
HPV16	L1	SSTSTAKRK	518	10		32365
HPV16	L1	SSTSTAKRKK	518	11		32366
HPV16	L1	STANLASSNY	308	10		32367
HPV16	L1	STANLASSNYF	308	11		32368
HPV16	L1	STDEYVAR	49	8		32369
HPV16	L1	STILEDWNF	422	9		32370
HPV16	L1	STNMSLCA	365	8		32371
HPV16	L1	STNMSLCAA	365	9		32372
HPV16	L1	STSETTYK	375	8		32373
HPV16	L1	STSTAKR	519	8		32374
HPV16	L1	STSTAKRK	519	9		32375
HPV16	L1	STSTAKRKK	519	10		32376
HPV16	L1	STSTAKRKKR	519	11		32377
HPV16	L1	STTAKRKK	521	8		32378
HPV16	L1	STTAKRKKR	521	9		32379
HPV16	L1	STTAKRKKRK	521	10		32380

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	TADVMTYIH	410	9		32381
HPV16	L1	TAKRKKRK	523	8		32382
HPV16	L1	TANLASSNY	309	9		32383
HPV16	L1	TANLASSNYF	309	10		32384
HPV16	L1	TCYENDVNYY	12	10		32385
HPV16	L1	TCYENDVNYYH	12	11		32386
HPV16	L1	TDEYVARTNIY	50	11		32387
HPV16	L1	TFIVLVITCY	4	11		32388
HPV16	L1	TFWEVNLK	471	8		32389
HPV16	L1	TFWEVNLKEK	471	10		32390
HPV16	L1	TFWEVNLKEKF	471	11		32391
HPV16	L1	TCFGAMDF	229	8		32392
HPV16	L1	TILEDWNF	423	8		32393
HPV16	L1	TLEDTYRF	439	8		32394
HPV16	L1	TLTADVMY	408	9		32395
HPV16	L1	TLTADVMTYIH	408	11		32396
HPV16	L1	TSDAQIFNK	327	9		32397
HPV16	L1	TSDAQIFNKPY	327	11		32398
HPV16	L1	TSETTYKNTNF	376	11		32399
HPV16	L1	TSFYNPDTQR	114	10		32400
HPV16	L1	TSICKYPDY	252	9		32401
HPV16	L1	TSICKYPDYK	252	11		32402
HPV16	L1	TSQAIAQK	448	9		32403
HPV16	L1	TSQAIAQKH	448	10		32404
HPV16	L1	TSRLAVGH	65	9		32405
HPV16	L1	TSRLAVGHPY	65	11		32406
HPV16	L1	TSSTSTA	517	8		32407
HPV16	L1	TSSTSTAK	517	9		32408
HPV16	L1	TSSTSTAKR	517	10		32409
HPV16	L1	TSSTSTAKRK	517	11		32410
HPV16	L1	TSTAKRK	520	8		32411
HPV16	L1	TSTAKRKK	520	9		32412
HPV16	L1	TSTAKRKKR	520	10		32413
HPV16	L1	TSTAKRKKRK	520	11		32414
HPV16	L1	TTAKRKKR	522	8		32415
HPV16	L1	TTAKRKKRK	522	9		32416
HPV16	L1	TTRSTNMSLCA	362	11		32417
HPV16	L1	TTSSTSTA	516	9		32418
HPV16	L1	TTSSTSTAK	516	10		32419
HPV16	L1	TTSSTSTAKR	516	11		32420
HPV16	L1	TTYKNTNF	379	8		32421
HPV16	L1	TTYKNTNFK	379	9		32422
HPV16	L1	TTYKNTNFKEY	379	11		32423
HPV16	L1	TVYLPVPVSK	36	11		32424
HPV16	L1	VARTNIYY	54	8		32425
HPV16	L1	VARTNIYYH	54	9		32426

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L1	VARTNIYYHA	54	10		32427
HPV16	L1	VDNRECISMDY	167	11		32428
HPV16	L1	VDTGFGAMDF	227	10		32429
HPV16	L1	VRIHLPDPNK	98	11		32430
HPV16	L1	VGENVPDDL	293	10		32431
HPV16	L1	VGHYPFPIK	71	9		32432
HPV16	L1	VGHYPFPIK	71	10		32433
HPV16	L1	VGISGHPLLNK	141	11		32434
HPV16	L1	VSEPYGDSL	264	10		32435
HPV16	L1	VSEPYGDSLFF	264	11		32436
HPV16	L1	VSLQYRVF	91	9		32437
HPV16	L1	VSLQYRVFR	91	10		32438
HPV16	L1	VSKVVTDEY	44	10		32439
HPV16	L1	VSTDEYVA	48	8		32440
HPV16	L1	VSTDEYVAR	48	9		32441
HPV16	L1	VTSDAQIF	326	8		32442
HPV16	L1	VTSDAQIFNK	326	10		32443
HPV16	L1	VTSQAIAQK	447	10		32444
HPV16	L1	VTSQAIAQKH	447	11		32445
HPV16	L1	VTVDVTR	357	8		32446
HPV16	L1	VVSTDEYVA	47	9		32447
HPV16	L1	VVSTDEYVAR	47	10		32448
HPV16	L1	WACVGEVGR	126	10		32449
HPV16	L1	WGKGSFCTNVA	195	11		32450
HPV16	L1	WLPSEATVY	30	9		32451
HPV16	L1	WLQRAQGH	338	8		32452
HPV16	L1	YAANAGVDNR	161	10		32453
HPV16	L1	YDLQIFQLCK	396	11		32454
HPV16	L1	YFPIKKPNNK	75	11		32455
HPV16	L1	YGDSLFFY	268	8		32456
HPV16	L1	YGDSLFFYL	268	10		32457
HPV16	L1	YGDSLFFYLRR	268	11		32458
HPV16	L1	YIKSGSTA	302	9		32459
HPV16	L1	YIKMVSEPY	260	9		32460
HPV16	L1	YILVITCY	7	8		32461
HPV16	L1	YLPVPVSVK	38	9		32462
HPV16	L1	YLRHGEY	389	8		32463
HPV16	L1	YLRQMF	275	8		32464
HPV16	L1	YLRQMFVR	275	10		32465
HPV16	L1	YLRQMFVRH	275	11		32466
HPV16	L1	YTFWEVNLK	470	9		32467
HPV16	L1	YTFWEVNLKEK	470	11		32468
HPV16	L1	YVARTNIY	53	8		32469
HPV16	L1	YVARTNIYY	53	9		32470
HPV16	L1	YVARTNIYYH	53	10		32471
HPV16	L1	YVARTNIYYHA	53	11		32472

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L2	ADAGDFYLII	441	9		32473
HPV16	L2	AFITPTK	241	8		32474
HPV16	L2	AGDFYLHPSY	443	10		32475
HPV16	L2	AGDFYLHPSYY	443	11		32476
HPV16	L2	AGTCPPDIIPK	25	11		32477
HPV16	L2	ALHRPALTSR	288	10		32478
HPV16	L2	ALHRPALTSRR	288	11		32479
HPV16	L2	ALPTSINNGLY	356	11		32480
HPV16	L2	ALTSRRRTGIR	293	10		32481
HPV16	L2	ALTSRRRTGIRY	293	11		32482
HPV16	L2	ASATQLYK	13	8		32483
HPV16	L2	ASATQLYKTKC	13	11		32484
HPV16	L2	ATDTLAPVR	82	9		32485
HPV16	L2	ATQLYKTKC	15	9		32486
HPV16	L2	ATQLYKTKCQA	15	11		32487
HPV16	L2	DAGDFYLH	442	8		32488
HPV16	L2	DAGDFYLHPSY	442	11		32489
HPV16	L2	DFLDIVALH	282	9		32490
HPV16	L2	DFLDIVALHR	282	10		32491
HPV16	L2	DFSTIDSA	329	8		32492
HPV16	L2	DFYLHPSY	445	8		32493
HPV16	L2	DFYLHPSYY	445	9		32494
HPV16	L2	DIPKVEGK	31	9		32495
HPV16	L2	DIPINITDQA	415	10		32496
HPV16	L2	DIVALHRPA	285	9		32497
HPV16	L2	DVDNTLYF	261	8		32498
HPV16	L2	EGIDVDNTLY	258	10		32499
HPV16	L2	EGIDVDNTLYF	258	11		32500
HPV16	L2	ELQITPTSTY	340	10		32501
HPV16	L2	ETSFIDAGA	111	9		32502
HPV16	L2	FFSDVSLA	465	8		32503
HPV16	L2	FFSDVSLAA	465	9		32504
HPV16	L2	FITPTKLITY	242	11		32505
HPV16	L2	FLDIVALH	283	8		32506
HPV16	L2	FLDIVALHR	283	9		32507
HPV16	L2	FLDIVALHRPA	283	11		32508
HPV16	L2	FSDVSLAA	466	8		32509
HPV16	L2	FSSNDNSINIA	268	11		32510
HPV16	L2	FTLSSSTSTH	181	11		32511
HPV16	L2	GAKVIYY	321	8		32512
HPV16	L2	GAKVIYYYDF	321	10		32513
HPV16	L2	GDFYLHPSY	444	9		32514
HPV16	L2	GDFYLHPSYY	444	10		32515
HPV16	L2	GIDVDNTLY	259	9		32516
HPV16	L2	GIDVDNTLYF	259	10		32517
HPV16	L2	GIGTSGTGGR	59	11		32518

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L2	GIRYSRIGNK	300	10		32519
HPV16	L2	GLYDIYADDF	364	10		32520
HPV16	L2	GLYSRTTQQVK	226	11		32521
HPV16	L2	GSGTGGRTGY	63	10		32522
HPV16	L2	GSPQYTIIA	433	9		32523
HPV16	L2	GSPQYTIADA	433	11		32524
HPV16	L2	GSRPVARLGLY	218	11		32525
HPV16	L2	GTCPPDIIPK	26	10		32526
HPV16	L2	GTGGRTGY	65	8		32527
HPV16	L2	GTGSGTGGR	61	9		32528
HPV16	L2	IADAGDFY	440	8		32529
HPV16	L2	IADAGDFYLH	440	10		32530
HPV16	L2	IADQILQY	41	8		32531
HPV16	L2	IDVDNTLY	260	8		32532
HPV16	L2	IDVDNTLYF	260	9		32533
HPV16	L2	IGAKVIHY	320	8		32534
HPV16	L2	IGAKVHYHY	320	9		32535
HPV16	L2	IGAKVHYHYDF	320	11		32536
HPV16	L2	IGNKQTLR	306	8		32537
HPV16	L2	IGNKQTLRTR	306	10		32538
HPV16	L2	IGTSGTGGR	60	10		32539
HPV16	L2	IIADAGDF	439	8		32540
HPV16	L2	IIADAGDFY	439	9		32541
HPV16	L2	IIADAGDFYLH	439	11		32542
HPV16	L2	IIPKVEGK	32	8		32543
HPV16	L2	IIPKVEGKTIA	32	11		32544
HPV16	L2	ILQYGSMGVF	45	10		32545
HPV16	L2	ILQYGSMGVFF	45	11		32546
HPV16	L2	ITPSTYTTTSH	344	11		32547
HPV16	L2	ITPTKLITY	243	10		32548
HPV16	L2	ITTSTDTPA	135	10		32549
HPV16	L2	ITYDNPAY	250	8		32550
HPV16	L2	IVALHRPA	286	8		32551
HPV16	L2	IVPGSPQY	430	8		32552
HPV16	L2	IVSLVEETSF	105	10		32553
HPV16	L2	KLITYDNPA	248	9		32554
HPV16	L2	KLITYDNPAY	248	10		32555
HPV16	L2	KSIGAKVH	318	8		32556
HPV16	L2	KSIGAKVHY	318	9		32557
HPV16	L2	KSIGAKVHYHY	318	10		32558
HPV16	L2	KSIGAKVHYHY	318	11		32559
HPV16	L2	KTIADQILQY	39	10		32560
HPV16	L2	KVEGKTIA	35	8		32561
HPV16	L2	KVIHYHYDF	323	8		32562
HPV16	L2	LDIVALHR	284	8		32563
HPV16	L2	LDIVALHRPA	284	10		32564

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L2	LGTRPPTA	75	8		32565
HPV16	L2	LPIVPGSPQY	427	11		32566
HPV16	L2	LITYDNPA	249	8		32567
HPV16	L2	LITYDNPAY	249	9		32568
HPV16	L2	LSSSTISH	183	9		32569
HPV16	L2	LSSSTISHNY	183	11		32570
HPV16	L2	LTSRRTGIR	294	9		32571
HPV16	L2	LTSRRTGIRY	294	10		32572
HPV16	L2	LVEETSFDA	108	10		32573
HPV16	L2	MLRKRKRKR	454	8		32574
HPV16	L2	MLRKRKRRLPY	454	11		32575
HPV16	L2	NDNSINIA	271	8		32576
HPV16	L2	NGLYDIYA	363	8		32577
HPV16	L2	NGLYDIYADDF	363	11		32578
HPV16	L2	NIAPDPDF	276	8		32579
HPV16	L2	NSINIAPDPDF	273	11		32580
HPV16	L2	NTTIPFGGA	397	9		32581
HPV16	L2	NTTIPFGGAY	397	10		32582
HPV16	L2	NIVTVTTH	150	9		32583
HPV16	L2	PAETGGHF	174	8		32584
HPV16	L2	PAFITPTK	240	9		32585
HPV16	L2	PALTSRRTGIR	292	11		32586
HPV16	L2	PANTTIPI	395	8		32587
HPV16	L2	PANTTIPIFGGA	395	11		32588
HPV16	L2	PDFLDIVA	281	8		32589
HPV16	L2	PDFLDIVALH	281	10		32590
HPV16	L2	PDFLDIVALHR	281	11		32591
HPV16	L2	PDIPKVEGK	30	10		32592
HPV16	L2	PDIPINITDQA	414	11		32593
HPV16	L2	PDPDFLDIVA	279	10		32594
HPV16	L2	PGSPQYTHA	432	10		32595
HPV16	L2	PGSRPVAR	217	8		32596
HPV16	L2	PINITDQA	417	8		32597
HPV16	L2	PIPGSRPVA	215	9		32598
HPV16	L2	PIPGSRPVAR	215	10		32599
HPV16	L2	PIVPGSPQY	429	9		32600
HPV16	L2	PLGTRPPTA	74	9		32601
HPV16	L2	PSIPPDVSGF	124	10		32602
HPV16	L2	PSTLSGY	386	8		32603
HPV16	L2	PSTLSGYIPA	386	11		32604
HPV16	L2	PSTYTTTSH	346	9		32605
HPV16	L2	PSTYTTTSHIA	346	10		32606
HPV16	L2	PSTYTTTSHAA	346	11		32607
HPV16	L2	PSVLQPPTPA	166	10		32608
HPV16	L2	PSVPSTLSGY	383	11		32609
HPV16	L2	PSYYMLRK	450	8		32610

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L2	PSYYMLRKR	450	9		32611
HPV16	L2	PSYYMLRKR	450	10		32612
HPV16	L2	PSYYMLRKRK	450	11		32613
HPV16	L2	PTATDTLA	80	8		32614
HPV16	L2	PTATDTLAPVR	80	11		32615
HPV16	L2	PTKLITYDNPA	246	11		32616
HPV16	L2	PTPAETGGH	172	9		32617
HPV16	L2	PTPAETGGHF	172	10		32618
HPV16	L2	PTSINNGLY	358	9		32619
HPV16	L2	PVARLGLY	221	8		32620
HPV16	L2	PVARLGLYSR	221	10		32621
HPV16	L2	QILQYGSMTVF	44	11		32622
HPV16	L2	QLYKTKQA	17	9		32623
HPV16	L2	QITPSTY	342	8		32624
HPV16	L2	QTLTRSGK	310	9		32625
HPV16	L2	QVKVVDPA	234	8		32626
HPV16	L2	QVKVVDPAF	234	9		32627
HPV16	L2	RASATQLY	12	8		32628
HPV16	L2	RASATQLYK	12	9		32629
HPV16	L2	RIGNKQTLR	305	9		32630
HPV16	L2	RIGNKQTLRTR	305	11		32631
HPV16	L2	RSAKRTKR	5	8		32632
HPV16	L2	RSAKRTKRA	5	9		32633
HPV16	L2	RSAKRTKRASA	5	11		32634
HPV16	L2	RSKSGA	315	8		32635
HPV16	L2	RSKSGIGAK	315	9		32636
HPV16	L2	RSKSGIGAKVH	315	11		32637
HPV16	L2	RTGIRYSR	298	8		32638
HPV16	L2	RTGYIPLGTR	69	10		32639
HPV16	L2	RTKRASATQLY	9	11		32640
HPV16	L2	RTRSGKSIGA	313	10		32641
HPV16	L2	RTRSGKSIGAK	313	11		32642
HPV16	L2	SAKRTKRA	6	8		32643
HPV16	L2	SAKRTKRASA	6	10		32644
HPV16	L2	SATQLYKTC	14	10		32645
HPV16	L2	SGKSIGAK	316	8		32646
HPV16	L2	SGKSIGAKVH	316	10		32647
HPV16	L2	SGKSIGAKVHY	316	11		32648
HPV16	L2	SGTGGRTGY	64	9		32649
HPV16	L2	SIGAKVHY	319	8		32650
HPV16	L2	SIGAKVHYHY	319	9		32651
HPV16	L2	SIGAKVHYYY	319	10		32652
HPV16	L2	SINIAPDPDF	274	10		32653
HPV16	L2	SINNGLYDIY	360	10		32654
HPV16	L2	SINNGLYDIYA	360	11		32655
HPV16	L2	SIPDPVSGF	125	9		32656

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L2	SITSTDTTPA	134	11		32657
HPV16	L2	SIVSLVEETSF	104	11		32658
HPV16	L2	SLSGYIPA	389	8		32659
HPV16	L2	SLVEETSF	107	8		32660
HPV16	L2	SLVEETSFIDA	107	11		32661
HPV16	L2	SSNDNSINIA	269	10		32662
HPV16	L2	SSSTISH	184	8		32663
HPV16	L2	SSSTISTHNY	184	10		32664
HPV16	L2	SSTISTHNY	185	9		32665
HPV16	L2	SSTPIGSR	212	9		32666
HPV16	L2	STISTHNY	186	8		32667
HPV16	L2	STPIGSR	213	8		32668
HPV16	L2	STPIGSRPVA	213	11		32669
HPV16	L2	STSLSGYIPA	387	10		32670
HPV16	L2	STYTTTSH	347	8		32671
HPV16	L2	STYTTTSHIA	347	9		32672
HPV16	L2	STYTTTSHAA	347	10		32673
HPV16	L2	SVLQPPIPA	167	9		32674
HPV16	L2	SVPSTSLGY	384	10		32675
HPV16	L2	TATDTLAPVR	81	10		32676
HPV16	L2	TCPPDIIPK	27	9		32677
HPV16	L2	TDLAPVR	83	8		32678
HPV16	L2	TGIRYSRIGNK	299	11		32679
HPV16	L2	TGSGTGGR	62	8		32680
HPV16	L2	TGSGTGGRGTGY	62	11		32681
HPV16	L2	TGYPLGTR	70	9		32682
HPV16	L2	TIADQILQY	40	9		32683
HPV16	L2	TIADAGDF	438	9		32684
HPV16	L2	TIADAGDFY	438	10		32685
HPV16	L2	TIPFGGAY	399	8		32686
HPV16	L2	TLRTRSGK	311	8		32687
HPV16	L2	TLSSSTISTH	182	10		32688
HPV16	L2	TSFIDAGA	112	8		32689
HPV16	L2	TSINNGLY	359	8		32690
HPV16	L2	TSINNGLYDIY	359	11		32691
HPV16	L2	TSLSGYIPA	388	9		32692
HPV16	L2	TSRRTGIR	295	8		32693
HPV16	L2	TSRRTGIRY	295	9		32694
HPV16	L2	TSRRTGIRYSR	295	11		32695
HPV16	L2	TSSTPIGSR	211	10		32696
HPV16	L2	TSTDTPA	137	8		32697
HPV16	L2	TTHNNPTF	156	8		32698
HPV16	L2	TTIPFGGA	398	8		32699
HPV16	L2	TTIPFGGAY	398	9		32700
HPV16	L2	TTPTKLITY	244	9		32701
HPV16	L2	TTQQVKVVDPA	231	11		32702

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV16	L2	TTSTDTTPA	136	9		32703
HPV16	L2	TTVTTHNNPTF	153	11		32704
HPV16	L2	TVTTHNNPTF	154	10		32705
HPV16	L2	TVTTVTTH	151	8		32706
HPV16	L2	VALHRPALTSR	287	11		32707
HPV16	L2	VARGLYSR	222	9		32708
HPV16	L2	VDPAFITTPK	238	11		32709
HPV16	L2	VLQPPTPA	168	8		32710
HPV16	L2	VSLVEETSF	106	9		32711
HPV16	L2	VTSSPIPGSR	210	11		32712
HPV16	L2	VTTHNNPTF	155	9		32713
HPV16	L2	YDFSTDSA	328	9		32714
HPV16	L2	YDIYADDF	366	8		32715
HPV16	L2	YFSDVSLA	464	9		32716
HPV16	L2	YFSDVSLAA	464	10		32717
HPV16	L2	YGSMDGVFF	48	8		32718
HPV16	L2	YIPANTTIPF	393	10		32719
HPV16	L2	YIPLGTRPPTA	72	11		32720
HPV16	L2	YLHPSYYMLR	447	10		32721
HPV16	L2	YLHPSYYMLRK	447	11		32722
HPV16	L2	YMLRKRK	453	8		32723
HPV16	L2	YMLRKRKR	453	9		32724
HPV16	L2	YSRIGNKQTLR	303	11		32725
HPV16	L2	YSRTTQVK	228	9		32726
HPV16	L2	YTIADAGDF	437	10		32727
HPV16	L2	YTIADAGDFY	437	11		32728
HPV16	L2	YTTTSHAA	349	8		32729
HPV18	E1	AAAFKSNCA	396	11		32730
HPV18	E1	AAFLKSNCA	397	10		32731
HPV18	E1	AAFLKSNCAK	397	11		32732
HPV18	E1	ADSNCAA	390	8		32733
HPV18	E1	ADSNCAAA	390	9		32734
HPV18	E1	ADSNCAAAF	390	10		32735
HPV18	E1	ADTEGNPF	636	8		32736
HPV18	E1	ADTEGNPFTF	636	11		32737
HPV18	E1	AFEYALLA	383	8		32738
HPV18	E1	AFLKSNCA	398	9		32739
HPV18	E1	AFLKSNCAK	398	10		32740
HPV18	E1	AFLKSNCAKY	398	11		32741
HPV18	E1	AIFGVNPTIA	246	10		32742
HPV18	E1	ALDGNPISDR	546	11		32743
HPV18	E1	ALFHAQEVH	68	9		32744
HPV18	E1	ALKSFLKQTPK	466	11		32745
HPV18	E1	ALLADSNAA	387	10		32746
HPV18	E1	ALLADSNAA	387	11		32747
HPV18	E1	ALLRYKCGK	284	9	0.0900	32748

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	ALLRYKCGKSR	284	11		32749
HPV18	E1	AMLAVFKDITY	213	10		32750
HPV18	E1	ATDTGSDMVD	40	11		32751
HPV18	E1	ATMCKHYR	413	8		32752
HPV18	E1	ATMCKHYRR	413	9	0.0300	32753
HPV18	E1	ATMCKHYRRA	413	10		32754
HPV18	E1	ATTTCWTY	531	8		32755
HPV18	E1	ATTTCWTYF	531	9		32756
HPV18	E1	AVFKDITYGLSF	216	11		32757
HPV18	E1	AVISFVNSTSH	504	11		32758
HPV18	E1	CATMCKHY	412	8		32759
HPV18	E1	CATMCKIYRR	412	9	0.0012	32760
HPV18	E1	CATMCKHYRRA	412	10		32761
HPV18	E1	CFERTWSR	618	11		32762
HPV18	E1	CGKSRLTVA	290	9		32763
HPV18	E1	CGKSRLTVAK	290	10		32764
HPV18	E1	CGPANTGK	483	8		32765
HPV18	E1	CGPANTGKSY	483	10		32766
HPV18	E1	CGPANTGKSYF	483	11		32767
HPV18	E1	CLVFCGPA	479	8		32768
HPV18	E1	CMLIQPPK	311	8		32769
HPV18	E1	CMLIQPPKLR	311	10		32770
HPV18	E1	CSGGSTE	160	8		32771
HPV18	E1	CSKIDEGGDWR	437	11		32772
HPV18	E1	CTDWVTAIF	240	9		32773
HPV18	E1	CTIAQLKDLK	196	11		32774
HPV18	E1	DADTEGNPF	635	9		32775
HPV18	E1	DAQVLHVLK	78	9		32776
HPV18	E1	DAQVLHVLKR	78	10		32777
HPV18	E1	DAQVLHVLKRK	78	11		32778
HPV18	E1	DATTTCWTY	530	9		32779
HPV18	E1	DATTTCWTYF	530	10		32780
HPV18	E1	DCATMCKH	411	8		32781
HPV18	E1	DCATMCKHY	411	9		32782
HPV18	E1	DCATMCKHYR	411	10		32783
HPV18	E1	DCATMCKHYRR	411	11		32784
HPV18	E1	DCATMCKHYRRA	411	12		32785
HPV18	E1	DKWGVLLA	275	10		32786
HPV18	E1	DATTTCWTY	529	10		32787
HPV18	E1	DATTTCWTYF	529	11		32788
HPV18	E1	DFIDTQGT	49	9		32789
HPV18	E1	DGEGTGCNGWF	8	11		32790
HPV18	E1	DGNPISIDR	548	9		32791
HPV18	E1	DGNPISIDRK	548	10		32792
HPV18	E1	DGNPISIDRKH	548	11		32793
HPV18	E1	DLHEEEDA	628	9		32794

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	DLLKVNKK	203	8		32795
HPV18	E1	DLLKVNKKQGA	203	11		32796
HPV18	E1	DLSEMVQWA	363	9		32797
HPV18	E1	DLSEMVQWAF	363	10		32798
HPV18	E1	DLVRNFKSDK	228	10		32799
HPV18	E1	DMAFEYALLA	381	10		32800
HPV18	E1	DSGYGCSEVEA	134	11		32801
HPV18	E1	DSNSNAAA	391	8		32802
HPV18	E1	DSNSNAAAF	391	9		32803
HPV18	E1	DSNSNAAAFK	391	11		32804
HPV18	E1	DTEGNPFGTF	637	10		32805
HPV18	E1	DTEGNPFGTFK	637	11		32806
HPV18	E1	DTGSDMVDV	42	9		32807
HPV18	E1	DTKVAMLDAA	522	10		32808
HPV18	E1	DTPEWQIR	342	8		32809
HPV18	E1	DTQGTCEQA	52	10		32810
HPV18	E1	DVISDDEDENA	30	11		32811
HPV18	E1	EDADTEGNPF	634	10		32812
HPV18	E1	EFITFLGA	459	8		32813
HPV18	E1	EFITFLGALK	459	10		32814
HPV18	E1	EFNAPPF	594	8		32815
HPV18	E1	EFNAPPFDK	594	10		32816
HPV18	E1	EGFKTLIQPF	256	10		32817
HPV18	E1	EGGDWRPIVQF	442	11		32818
HPV18	E1	EGNPFQTF	639	8		32819
HPV18	E1	EGNPFQTFK	639	9		32820
HPV18	E1	EGNPFQTFKLR	639	11		32821
HPV18	E1	EGTGCNGWF	10	9	0.0008	32822
HPV18	E1	EGTGCNGWY	10	10	0.0005	32823
HPV18	E1	EINDKNWK	610	8		32824
HPV18	E1	EINDKNWKCF	610	10		32825
HPV18	E1	EINDKNWKCFK	610	11		32826
HPV18	E1	EISLSGQK	115	9		32827
HPV18	E1	EISLSGQKK	115	10		32828
HPV18	E1	EISLSGQKKA	115	11		32829
HPV18	E1	ELETAQALF	62	9		32830
HPV18	E1	ELETAQALFH	62	10		32831
HPV18	E1	ELETAQALFHI	62	11		32832
HPV18	E1	ELTDESDMA	375	9		32833
HPV18	E1	ELTDESDMAF	375	10		32834
HPV18	E1	ESDMAFEY	379	8		32835
HPV18	E1	ESDMAFEYA	379	9		32836
HPV18	E1	ESRITVFEF	587	9		32837
HPV18	E1	ETAQALFH	64	8		32838
HPV18	E1	ETAQALFHA	64	9		32839
HPV18	E1	ETCMLIQPPK	309	10		32840

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	EVDTELSPR	104	9		32841
HPV18	E1	EVHDAQVLH	74	10		32842
HPV18	E1	FCEQAETA	57	10		32843
HPV18	E1	FCGPANTGK	482	9		32844
HPV18	E1	FCGPANTGKSY	482	11		32845
HPV18	E1	FDKNGNPVY	601	9		32846
HPV18	E1	FDLSEMVQWA	362	10		32847
HPV18	E1	FDLSEMVQWAF	362	11		32848
HPV18	E1	FDTYMRNA	539	8		32849
HPV18	E1	FFERTWSR	619	8		32850
HPV18	E1	FGMSFIHF	493	8		32851
HPV18	E1	FGTFKLRA	643	8		32852
HPV18	E1	FGVNPTIA	248	8		32853
HPV18	E1	FGVNPTIABGF	248	11		32854
HPV18	E1	FIDTQGT	50	8		32855
HPV18	E1	FHFQGA	497	8		32856
HPV18	E1	FIQGAVISF	500	9		32857
HPV18	E1	FITFLGALK	460	9	0.0320	32858
HPV18	E1	FITFLGALKSF	460	11		32859
HPV18	E1	FLGALKSF	463	8		32860
HPV18	E1	FLGALKSFLK	463	10		32861
HPV18	E1	FLKGTGPK	470	8		32862
HPV18	E1	FLKSNCA	399	8		32863
HPV18	E1	FLKSNCAQAK	399	9	0.0035	32864
HPV18	E1	FLKSNCAQAKY	399	10		32865
HPV18	E1	FLRYQIEF	452	9		32866
HPV18	E1	FTDLVRNF	226	8		32867
HPV18	E1	FTDLVRNFK	226	9		32868
HPV18	E1	FTISDSGY	130	8		32869
HPV18	E1	FVNSTSHF	508	8		32870
HPV18	E1	GALKSFLK	465	8		32871
HPV18	E1	GAMLA VFK	212	8		32872
HPV18	E1	GAMLA VFKDTY	212	11		32873
HPV18	E1	GCNGWFYVQA	13	10		32874
HPV18	E1	GDTPEWQIR	341	9	0.0008	32875
HPV18	E1	GDWRPIVQF	444	9		32876
HPV18	E1	GDWRPIVQFLR	444	11		32877
HPV18	E1	GFKTLIQF	257	9		32878
HPV18	E1	GGDWRPIVQF	443	10		32879
HPV18	E1	GLSFTDLVR	223	9	0.0009	32880
HPV18	E1	GLSFTDLVRNF	223	11		32881
HPV18	E1	GMSFIHFQGA	494	11		32882
HPV18	E1	GSTENSPLGER	92	11		32883
HPV18	E1	GTFKLRAQNH	644	11		32884
HPV18	E1	GTGCNGWF	11	8		32885
HPV18	E1	GTGCNGWFF	11	9	0.0004	32886

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	GTPKKNCLVF	473	10		32887
HPV18	E1	GVLILALLR	279	9		32888
HPV18	E1	GVLILALLRY	279	10	0.0058	32889
HPV18	E1	GVLILALLRYK	279	11		32890
HPV18	E1	GVNPTIAEGF	249	10		32891
HPV18	E1	GVNPTIAEGFK	249	11		32892
HPV18	E1	HAQEVINDA	71	9		32893
HPV18	E1	HFIQGAVISF	499	10		32894
HPV18	E1	HFWLEPLTDTK	514	11		32895
HPV18	E1	HGIDDSNF	355	8		32896
HPV18	E1	HIQCLDCK	270	8		32897
HPV18	E1	HVLKRKFA	83	8		32898
HPV18	E1	IAQLKDLLK	198	9	0.0003	32899
HPV18	E1	IDEGGDWR	440	8		32900
HPV18	E1	IDTQGTCEQA	51	11		32901
HPV18	E1	IFGVNPTIA	247	9		32902
HPV18	E1	IIQHIDDSNF	352	11		32903
HPV18	E1	ILALLRYK	282	8		32904
HPV18	E1	ILALLRYKCGK	282	11		32905
HPV18	E1	ILLTNIH	569	8		32906
HPV18	E1	ILLTNIHPA	569	10		32907
HPV18	E1	ILLTNIHPAK	569	11		32908
HPV18	E1	ISDDEENA	32	9		32909
HPV18	E1	ISFVNSTSH	506	9		32910
HPV18	E1	ISFVNSTSHF	506	10		32911
HPV18	E1	ISDRKKH	552	8		32912
HPV18	E1	ISLNSGQK	116	8		32913
HPV18	E1	ISLNSGQKK	116	9	0.0003	32914
HPV18	E1	ISLNSGQKKA	116	10		32915
HPV18	E1	ISLNSGQKKAK	116	11		32916
HPV18	E1	ITFLGALK	461	8		32917
HPV18	E1	ITFLGALKSF	461	10		32918
HPV18	E1	ITVFEFPA	590	9		32919
HPV18	E1	ITVFEFPNAF	590	10		32920
HPV18	E1	KCFERTWSR	617	10		32921
HPV18	E1	KCGKSRLTVA	289	10		32922
HPV18	E1	KCGKSRLTVAK	289	11		32923
HPV18	E1	KDCATMCK	410	8		32924
HPV18	E1	KDCATMCKH	410	9		32925
HPV18	E1	KDCATMCKHY	410	10		32926
HPV18	E1	KDCATMCKHYR	410	11		32927
HPV18	E1	KDLLKVNK	202	9		32928
HPV18	E1	KDNRWPYLESR	579	11		32929
HPV18	E1	KDTYGLSF	219	8		32930
HPV18	E1	KGLSTLLH	299	8		32931
HPV18	E1	KGTPKKNCLVF	472	11		32932

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	KIDEGDWR	439	9		32933
HPV18	E1	KLRAGQNH	647	8		32934
HPV18	E1	KLRAGQNH	647	9	0.3000	32935
HPV18	E1	KLRSSVAA	318	8		32936
HPV18	E1	KLRSSVAAALY	318	10		32937
HPV18	E1	KSFLKGTGP	468	9	0.0003	32938
HPV18	E1	KSFLKGTGPK	468	10		32939
HPV18	E1	KSNCQAKY	401	8		32940
HPV18	E1	KSNCQAKYLK	401	10		32941
HPV18	E1	KSRLTVAK	292	8		32942
HPV18	E1	KSYPGMSF	490	8		32943
HPV18	E1	KSYPGMSFIH	490	10		32944
HPV18	E1	KSYPGMSFIHF	490	11		32945
HPV18	E1	KTLIQPFILY	259	10		32946
HPV18	E1	KTLIQPFILYA	259	11		32947
HPV18	E1	KTCTDWDVTA	237	10		32948
HPV18	E1	KVAMLDLDA	524	8		32949
HPV18	E1	KVNNKQGA	206	8		32950
HPV18	E1	KVNNKQGAMLA	206	11		32951
HPV18	E1	LADSNNA	389	8		32952
HPV18	E1	LADSNNA	389	9		32953
HPV18	E1	LADSNNA	389	10		32954
HPV18	E1	LADSNNA	389	11		32955
HPV18	E1	LADSNNA	389	10		32956
HPV18	E1	LALRYKCGK	283	8		32957
HPV18	E1	LAVFKDTY	215	11		32958
HPV18	E1	LACKWGVILA	274	11		32959
HPV18	E1	LDDATTTCWTY	528	11		32960
HPV18	E1	LDGNPISDR	547	10		32961
HPV18	E1	LDGNPISDRK	547	11		32962
HPV18	E1	LDLHEEEDA	627	10		32963
HPV18	E1	LFHAQEVH	69	8		32964
HPV18	E1	LFHAQEVHDA	69	11		32965
HPV18	E1	LFTSDSGY	129	9		32966
HPV18	E1	LGALKSFLK	464	9		32967
HPV18	E1	LILALLRY	281	8		32968
HPV18	E1	LILALLRYK	281	9	0.2700	32969
HPV18	E1	LIQPFILY	261	8		32970
HPV18	E1	LIQPFILYA	261	9		32971
HPV18	E1	LIQPFILYAH	261	10		32972
HPV18	E1	LIQPKLR	313	8		32973
HPV18	E1	LLADSNNA	388	9		32974
HPV18	E1	LLADSNNA	388	10		32975
HPV18	E1	LLADSNNA	388	11		32976
HPV18	E1	LLKVNKQGA	204	10		32977
HPV18	E1	LLRYKCGK	285	8		32978
HPV18	E1	LLRYKCGKSR	285	10		32979

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	LLTTNIHPA	570	9		32979
HPV18	E1	LLTTNIHPAK	570	10		32980
HPV18	E1	LSEMVQWA	364	8		32981
HPV18	E1	LSEMVQWAF	364	9		32982
HPV18	E1	LSFTDLVR	224	8		32983
HPV18	E1	LSFTDLVRNF	224	10		32984
HPV18	E1	LSFTDLVRNFK	224	11		32985
HPV18	E1	LTDES DMA	376	8		32986
HPV18	E1	LTDES DMAF	376	9		32987
HPV18	E1	LTDES DMAFEY	376	11		32988
HPV18	E1	LTNNIHPA	571	8		32989
HPV18	E1	LTNNIHPAK	571	9	0.0910	32990
HPV18	E1	LVFCGPANTGK	480	11		32991
HPV18	E1	LVRNFKSDK	229	9	0.0005	32992
HPV18	E1	MAFEYALLA	382	9		32993
HPV18	E1	MCKHYRRA	415	8		32994
HPV18	E1	MCKHYRRAQK	415	10		32995
HPV18	E1	MCKHYRRAQKR	415	11		32996
HPV18	E1	MGDTPFWIQ	340	10		32997
HPV18	E1	MLAVFKDTY	214	9		32998
HPV18	E1	MLIQPPKLR	312	9	0.0005	32999
HPV18	E1	MSFIHQGA	495	10		33000
HPV18	E1	MSQWIRFR	429	8		33001
HPV18	E1	MSQWIRFRCSK	429	11		33002
HPV18	E1	MVDFIDTQTF	47	11		33003
HPV18	E1	NCLVFCGPA	478	9		33004
HPV18	E1	NCQAKYLK	403	8		33005
HPV18	E1	NCQAKYLKDCA	403	11		33006
HPV18	E1	NDAQVLHLVK	77	10		33007
HPV18	E1	NDAQVLHLVKR	77	11		33008
HPV18	E1	NDKNWCKF	612	8		33009
HPV18	E1	NDKNWCKFF	612	9		33010
HPV18	E1	NDKNWCKFFER	612	11		33011
HPV18	E1	NFDLSEMVQWA	361	11		33012
HPV18	E1	NGNPVYEINDK	604	11		33013
HPV18	E1	NGWFYVQA	15	8		33014
HPV18	E1	NIHPAKDNR	574	9	0.0005	33015
HPV18	E1	NMSQWIRF	428	8		33016
HPV18	E1	NMSQWIRFR	428	9	0.0540	33017
HPV18	E1	NSGQKKAK	119	8		33018
HPV18	E1	NSGQKKAKR	119	9	0.0005	33019
HPV18	E1	NSGQKKAKRR	119	10		33020
HPV18	E1	NSNA AFLK	393	9	0.0057	33021
HPV18	E1	NTGKSYFGMSF	487	11		33022
HPV18	E1	NVCSGSTE A	158	10		33023
HPV18	E1	NVNPQCTIA	191	9		33024

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	PAKDNRWPY	577	9		33025
HPV18	E1	PANTGKSY	485	8		33026
HPV18	E1	PANTGKSYF	485	9		33027
HPV18	E1	PFDKNGNPVY	600	10		33028
HPV18	E1	PFGTFKLK	642	8		33029
HPV18	E1	PFGTFKLRA	642	9		33030
HPV18	E1	PILLTTNIH	568	9		33031
HPV18	E1	PILLTTNIHPA	568	11		33032
HPV18	E1	PISIDRKH	551	8		33033
HPV18	E1	PISIDRKHK	551	9		33034
HPV18	E1	PIVQFLRY	448	8		33035
HPV18	E1	PLTDTKVA	519	8		33036
HPV18	E1	PTIAEGFK	252	8		33037
HPV18	E1	PVYEINDK	607	8		33038
HPV18	E1	PVYEINDKNWK	607	11		33039
HPV18	E1	QAELETAQA	60	9		33040
HPV18	E1	QAELETAQALF	60	11		33041
HPV18	E1	QAKYLKDCA	405	9		33042
HPV18	E1	QALFHAQEVH	67	10		33043
HPV18	E1	QCTIAQLK	195	8		33044
HPV18	E1	QFLRYQQIEF	451	10		33045
HPV18	E1	QGAMLAVF	211	8		33046
HPV18	E1	QGAMLA VFK	211	9		33047
HPV18	E1	QGTFCQA	54	8		33048
HPV18	E1	QIEFTFLGA	457	10		33049
HPV18	E1	QIQVTTNGEH	146	10		33050
HPV18	E1	QLKDLLKVNKK	200	11		33051
HPV18	E1	QNMMSQWIR	426	9	0.0011	33052
HPV18	E1	QNMMSQWIRF	426	10		33053
HPV18	E1	QNMMSQWIRFR	426	11		33054
HPV18	E1	QVLHVLKR	80	8		33055
HPV18	E1	QVLHVLKRK	80	9	0.0028	33056
HPV18	E1	QVLHVLKRKF	80	10		33057
HPV18	E1	QVLHVLKRKFA	80	11		33058
HPV18	E1	QVTNGEH	148	8		33059
HPV18	E1	RITVFEFPNA	589	10		33060
HPV18	E1	RITVFEFPNAF	589	11		33061
HPV18	E1	RLDLHEEEDA	626	11		33062
HPV18	E1	RLVDTELSPR	102	11		33063
HPV18	E1	RLFTISDSGY	128	10		33064
HPV18	E1	RSSVAALY	320	8		33065
HPV18	E1	RSSVAALYWY	320	10		33066
HPV18	E1	RSSVAALYWYR	320	11		33067
HPV18	E1	RTWSRLDLH	622	9		33068
HPV18	E1	SDDEDENA	33	8		33069
HPV18	E1	SDMAFEYA	380	8		33070

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	SDMAFEYALLA	380	11		33071
HPV18	E1	SFIHFIQGA	496	9		33072
HPV18	E1	SFLKGTPK	469	8		33073
HPV18	E1	SFLKGTPKK	469	9		33074
HPV18	E1	SFTDLVRNF	225	9		33075
HPV18	E1	SFTDLVRNFK	225	10		33076
HPV18	E1	SFVNSTSH	507	8		33077
HPV18	E1	SFVNSTSHF	507	9		33078
HPV18	E1	SGQKKAKR	120	8		33079
HPV18	E1	SGQKKAKRR	120	9		33080
HPV18	E1	SGQKKAKRRLF	120	11		33081
HPV18	E1	SGYGCSEVA	135	10		33082
HPV18	E1	SLNSGQKK	117	8		33083
HPV18	E1	SLNSGQKKA	117	9		33084
HPV18	E1	SLNSGQKKAK	117	10		33085
HPV18	E1	SLNSGQKKAKR	117	11		33086
HPV18	E1	SSVAALYWY	321	9		33087
HPV18	E1	SSVAALYWYR	321	10		33088
HPV18	E1	STENSPLGER	93	10		33089
HPV18	E1	SVAALYWY	322	8		33090
HPV18	E1	SVAALYWYR	322	9	2.9000	33091
HPV18	E1	TAIFGVNPTIA	245	11		33092
HPV18	E1	TAQALFHA	65	8		33093
HPV18	E1	TCMLIQPKK	310	9		33094
HPV18	E1	TCMLIQPKKLR	310	11		33095
HPV18	E1	TCTDWWTA	239	8		33096
HPV18	E1	TCTDWWTAIF	239	10		33097
HPV18	E1	TCWTYFDY	534	9		33098
HPV18	E1	TCWTYFDTYMR	534	11		33099
HPV18	E1	TDESMAF	377	8		33100
HPV18	E1	TDESMAFEY	377	10		33101
HPV18	E1	TDESMAFEYA	377	11		33102
HPV18	E1	TDLVRNFK	227	8		33103
HPV18	E1	TDLVRNFKSDK	227	11		33104
HPV18	E1	TDTGSDMVDF	41	10		33105
HPV18	E1	TDTKVAMLLDDA	521	11		33106
HPV18	E1	TDWVTAIF	241	8		33107
HPV18	E1	TFCEQAELETA	56	11		33108
HPV18	E1	TFKLRAQGNH	645	10		33109
HPV18	E1	TFKLRAQGNHR	645	11		33110
HPV18	E1	TFLGALKSF	462	9		33111
HPV18	E1	TFLGALKSFLK	462	11		33112
HPV18	E1	TGCNGWFF	12	8		33113
HPV18	E1	TGCNGWFYVQA	12	11		33114
HPV18	E1	TGKSYFGMSF	488	10		33115
HPV18	E1	TGSDMVDF	43	8		33116

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	TIAQLKDLLK	197	10		33117
HPV18	E1	TLIQPFILY	260	9		33118
HPV18	E1	TLIQPFILYA	260	10		33119
HPV18	E1	TLIQPFILYAH	260	11		33120
HPV18	E1	TMCKHYRR	414	8		33121
HPV18	E1	TMCKHYRRA	414	9		33122
HPV18	E1	TMCKHYRRAQK	414	11		33123
HPV18	E1	TTCTDWTVA	238	9		33124
HPV18	E1	TTCTDWTVAIF	238	11		33125
HPV18	E1	TTCTDWTVAIF	533	10		33126
HPV18	E1	TTCTDWTVAIF	572	8		33127
HPV18	E1	TTNIHPAK	572	11		33128
HPV18	E1	TTNIHPAKDNR	572	11		33129
HPV18	E1	TTTCWTYF	532	8		33130
HPV18	E1	TTTCWTYFDTY	532	11		33131
HPV18	E1	TVAKGLSTLLH	296	11		33132
HPV18	E1	TVFEFPNA	591	8		33133
HPV18	E1	TVFEFPNAF	591	9		33134
HPV18	E1	TVFEFPNAFPF	591	11		33135
HPV18	E1	VAALYWYR	323	8		33136
HPV18	E1	VAKGLSTLLH	297	10		33137
HPV18	E1	VCSGGSTEA	159	9		33138
HPV18	E1	VDHDTQGTG	48	10		33139
HPV18	E1	VDTELSR	105	8		33140
HPV18	E1	VFCGPANTGK	481	10		33141
HPV18	E1	VFEFPNAF	592	8		33142
HPV18	E1	VFEFPNAFPF	592	10		33143
HPV18	E1	VFKDTYGLSF	217	10		33144
HPV18	E1	VISDDEDNA	31	10		33145
HPV18	E1	VISFVNSTSH	505	10		33146
HPV18	E1	VISFVNSTSHF	505	11		33147
HPV18	E1	VLHVLKRR	81	8		33148
HPV18	E1	VLHVLKRRKF	81	9		33149
HPV18	E1	VLHVLKRRKFA	81	10		33150
HPV18	E1	VLILALLR	280	8		33151
HPV18	E1	VLILALLRY	280	9		33152
HPV18	E1	VLILALLRYK	280	10		33153
HPV18	E1	VMGDTPEWQIR	339	11		33154
HPV18	E1	WFYVQAIVDK	17	10		33155
HPV18	E1	WFYVQAIVDKK	17	11		33156
HPV18	E1	WGVILALLR	278	10		33157
HPV18	E1	WGVILALLRY	278	11		33158
HPV18	E1	WQRLTIQHI	346	10		33159
HPV18	E1	WIFERCCK	432	8		33160
HPV18	E1	WLEPLTDTK	516	9		33161
HPV18	E1	WLEPLDTKVA	516	11		33162
HPV18	E1	WTYFDTYMR	536	9	0.0005	

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E1	WTYFDTYMRNA	536	11		33163
HPV18	E1	YAHQCLDCK	268	10		33164
HPV18	E1	YALLADSNNA	386	11		33165
HPV18	E1	YFDTYMRNA	538	9		33166
HPV18	E1	YFGMSFIH	492	8		33167
HPV18	E1	YFGMSFIHF	492	9		33168
HPV18	E1	YGCSEVEA	137	8		33169
HPV18	E1	YGLSFTDLVR	222	10		33170
HPV18	E1	YLESRTIVF	585	9		33171
HPV18	E1	YLESRTIVFEF	585	11		33172
HPV18	E1	YLKDCATMCK	408	10		33173
HPV18	E1	YLKDCATMCKH	408	11		33174
HPV18	E1	YVQAIVDK	19	8		33175
HPV18	E1	YVQAIVDKK	19	9	0.0005	33176
HPV18	E2	AATPTGNNK	269	9		33177
HPV18	E2	AATPTGNNKR	269	10		33178
HPV18	E2	AATPTGNNKRR	269	11		33179
HPV18	E2	AATRPGHGCLA	245	11		33180
HPV18	E2	AGTWDKTA	147	8		33181
HPV18	E2	AIFFAAREH	45	9		33182
HPV18	E2	ALQGLAQR	82	9		33183
HPV18	E2	ALQGLAQR	82	10		33184
HPV18	E2	ALQGLAQR	82	11		33185
HPV18	E2	ATCVSHRGLY	154	10		33186
HPV18	E2	ATCVSHRGLY	154	11		33187
HPV18	E2	ATPTGNNK	270	8		33188
HPV18	E2	ATPTGNNKR	270	9		33189
HPV18	E2	ATPTGNNKRR	270	10		33190
HPV18	E2	ATPTGNNKRRK	270	11		33191
HPV18	E2	ATQLVKQLQH	214	10		33192
HPV18	E2	ATRPCHCGLA	246	10		33193
HPV18	E2	CGLAQKQH	252	8		33194
HPV18	E2	CGPVNPLLGA	260	10		33195
HPV18	E2	CGPVNPLLGA	260	11		33196
HPV18	E2	CLRYRLRK	301	8		33197
HPV18	E2	CLRYRLRKII	301	9		33198
HPV18	E2	CMTYVAWDSVY	132	11		33199
HPV18	E2	CSGNTTPIH	282	10		33200
HPV18	E2	CSTSDDTVSA	205	10		33201
HPV18	E2	CVQDKIIDH	14	9		33202
HPV18	E2	CVQDKIIDHY	14	10		33203
HPV18	E2	CVSHRGLY	156	8		33204
HPV18	E2	CVSHRGLY	156	9		33205
HPV18	E2	CVSHRGLYVVK	156	11		33206
HPV18	E2	DAGTWDKTA	146	9		33207
HPV18	E2	DDTVSATQLVK	209	11		33208

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E2	DGNKDNCMY	126	10		33209
HPV18	E2	DIDSQIQY	29	8		33210
HPV18	E2	DISSTWHWTGA	315	11		33211
HPV18	E2	DSKDIDSQIQY	26	11		33212
HPV18	E2	DSQIQYWQLIR	31	11		33213
HPV18	E2	DSVQILVG Y	354	9		33214
HPV18	E2	DSVYYMTDA	139	9		33215
HPV18	E2	DTVSATQLVK	210	10		33216
HPV18	E2	EFKSECEK	175	8		33217
HPV18	E2	EFKSECEKY	175	9		33218
HPV18	E2	EGYNTFYIEF	167	10		33219
HPV18	E2	EGYNTFYIEFK	167	11		33220
HPV18	E2	ELQMALQGLA	78	10		33221
HPV18	E2	ELWNTPEPTH	104	9		33222
HPV18	E2	ELWNTPETHCF	104	11		33223
HPV18	E2	FDGNKDNCMY	125	11		33224
HPV18	E2	GAATPTGNK	268	10		33225
HPV18	E2	GAATPTGNKNR	268	11		33226
HPV18	E2	GDRNSLKCLR	294	10		33227
HPV18	E2	GGQTVQVY	294	11		33228
HPV18	E2	GGQTVQVYF	117	8		33229
HPV18	E2	GILTVTYH	117	9		33230
HPV18	E2	GLAQSRYK	331	8		33231
HPV18	E2	GLYYVKEGY	85	8		33232
HPV18	E2	GLYYVKEGY	161	9		33233
HPV18	E2	GTAKTYGGTSA	235	11		33234
HPV18	E2	HCGLAEKQH	251	9		33235
HPV18	E2	HCGPVNPLGA	259	11		33236
HPV18	E2	HGIQTLNH	53	8		33237
HPV18	E2	HLKGDRLSLK	291	10		33238
HPV18	E2	HSETQRTK	338	8		33239
HPV18	E2	HSETQRTKF	338	9		33240
HPV18	E2	IDHYENDSK	20	9		33241
HPV18	E2	IFFAAREH	46	8		33242
HPV18	E2	IIDHYENDSK	19	10		33243
HPV18	E2	IHLKGDR	289	8		33244
HPV18	E2	ISKSKAHK	68	8		33245
HPV18	E2	ISKSKAHKA	68	9		33246
HPV18	E2	ISSTWHWTGA	316	10		33247
HPV18	E2	KAHKAIELQMA	72	11		33248
HPV18	E2	KAIELQMA	75	8		33249
HPV18	E2	KCLRYRLR	300	8		33250
HPV18	E2	KCLRYRLRK	300	9		33251
HPV18	E2	KCLRYRLRKH	300	10		33252
HPV18	E2	KDIDSQIQY	28	9		33253
HPV18	E2	KDNCMYVA	129	9		33254

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E2	KGDRNSLK	293	8		33255
HPV18	E2	KGDRNSLKCLR	293	11		33256
HPV18	E2	KGQTVQVY	116	9		33257
HPV18	E2	KGQTVQVYF	116	10		33258
HPV18	E2	KIIDIYENDSK	18	11		33259
HPV18	E2	KTATCVSH	152	8		33260
HPV18	E2	KTATCVSHR	152	9		33261
HPV18	E2	KTGILTVTY	329	9		33262
HPV18	E2	KTGILTVTYH	329	10		33263
HPV18	E2	KTYGQTSAA	238	8		33264
HPV18	E2	KTYGQTSAA	238	9		33265
HPV18	E2	KTYGQTSAAATR	238	11		33266
HPV18	E2	LCSGNTPIH	281	11		33267
HPV18	E2	LGAATPTGNNK	267	11		33268
HPV18	E2	LIRWENAIFF	39	9		33269
HPV18	E2	LIRWENAIFF	39	10		33270
HPV18	E2	LIRWENAIFFA	39	11		33271
HPV18	E2	LSCVQDKIHDH	12	11		33272
HPV18	E2	LSERLSCVQDK	8	11		33273
HPV18	E2	LTVTYHSETQR	333	11		33274
HPV18	E2	MALQGLAQR	81	10		33275
HPV18	E2	MALQGLAQR	81	11		33276
HPV18	E2	MCSTSDDTVSA	204	11		33277
HPV18	E2	MTDAGTWDK	144	9		33278
HPV18	E2	MTDAGTWDKTA	144	11		33279
HPV18	E2	MTYVAWDSVY	133	10		33280
HPV18	E2	MTYVAWDSVY	133	11		33281
HPV18	E2	NAIFFAAR	44	8		33282
HPV18	E2	NAIFFAAREH	44	10		33283
HPV18	E2	NISKSAH	67	8		33284
HPV18	E2	NISKSAHK	67	9		33285
HPV18	E2	NISKSAHKA	67	10		33286
HPV18	E2	NSLKCLR	297	8		33287
HPV18	E2	NSLKCLR	297	9		33288
HPV18	E2	NSLKCLRRLR	297	11		33289
HPV18	E2	NTEPTICF	107	8		33290
HPV18	E2	NTEPTICFK	107	9		33291
HPV18	E2	NTEPTICFKK	107	10		33292
HPV18	E2	NTFYIEFK	170	8		33293
HPV18	E2	NTGTWEVH	185	8		33294
HPV18	E2	NTGTWEVHF	185	9		33295
HPV18	E2	NTPIHLK	285	9		33296
HPV18	E2	PAYNISKS	64	9		33297
HPV18	E2	PAYNISKS	64	10		33298
HPV18	E2	PAYNISKSAH	64	11		33299
HPV18	E2	PDSVQILVGY	353	10		33300

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E2	PGHCGLAEK	249	9		33301
HPV18	E2	PGHCGLAEKQH	249	11		33302
HPV18	E2	PIHLKGDR	288	9		33303
HPV18	E2	PTGNNKRR	272	8		33304
HPV18	E2	PTGNNKRRK	272	9		33305
HPV18	E2	PVNPLLGA	262	8		33306
HPV18	E2	PVNPLLGAA	262	9		33307
HPV18	E2	QDKIIDHY	16	8		33308
HPV18	E2	QGLAQSR	84	8		33309
HPV18	E2	QGLAQSR	84	9		33310
HPV18	E2	QIYWQLIR	33	9		33311
HPV18	E2	QLRWENA	38	8		33312
HPV18	E2	QLRWENAIF	38	10		33313
HPV18	E2	QLRWENAIF	38	11		33314
HPV18	E2	QLQHTSPY	220	9		33315
HPV18	E2	QLVKQLQH	216	8		33316
HPV18	E2	QMALQGLA	80	8		33317
HPV18	E2	QMALQGLAQSR	80	11		33318
HPV18	E2	QTLNHQVPA	56	10		33319
HPV18	E2	QTLNHQVVPAY	56	11		33320
HPV18	E2	QTPKETLSER	2	10		33321
HPV18	E2	QTSAAATRP	242	10		33322
HPV18	E2	QTSAAATRP	242	11		33323
HPV18	E2	QVVPAYNISK	61	10		33324
HPV18	E2	QVYFDGNK	122	8		33325
HPV18	E2	QVYFDGNK	122	8		33326
HPV18	E2	RDISTWH	314	8		33327
HPV18	E2	RGLYYVKEGY	160	10		33328
HPV18	E2	RLRKHSDH	305	8		33329
HPV18	E2	RLRKHSDH	305	9		33330
HPV18	E2	RLRKHSDHYR	305	10		33331
HPV18	E2	RLSCVQDK	11	8		33332
HPV18	E2	RTKFLNTVA	343	9		33333
HPV18	E2	SAATRP	244	8		33334
HPV18	E2	SATQLVKQLQH	213	11		33335
HPV18	E2	SCVQDKIHD	13	10		33336
HPV18	E2	SCVQDKIHDHY	13	11		33337
HPV18	E2	SGNTTPIH	283	9		33338
HPV18	E2	SGNTTPIHLK	283	11		33339
HPV18	E2	SLKCLRYR	298	8		33340
HPV18	E2	SLKCLRYRLR	298	10		33341
HPV18	E2	SLKCLRYRLRK	298	11		33342
HPV18	E2	SSTVSVGT	229	9		33343
HPV18	E2	SSTVSVGTAK	229	10		33344
HPV18	E2	SSTVSVGTGA	317	9		33345
HPV18	E2	STSDDTVSA	206	9		33346
HPV18	E2	STVSVGT	230	8		33347

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E2	STVSVGTAK	230	9		33347
HPV18	E2	STVSVGTAKTY	230	11		33348
HPV18	E2	STWHWTGA	318	8		33349
HPV18	E2	SVGTAKTY	233	8		33350
HPV18	E2	SVQILVGY	355	8		33351
HPV18	E2	SVYYMTDA	140	8		33352
HPV18	E2	TAKTYGQTSAA	236	10		33353
HPV18	E2	TAKTYGQTSAA	236	11		33354
HPV18	E2	TATCVSHR	153	8		33355
HPV18	E2	TATCVSHRGLY	153	11		33356
HPV18	E2	TCVSHRGLY	155	9		33357
HPV18	E2	TCVSHRGLYY	155	10		33358
HPV18	E2	TDAGTWDK	145	8		33359
HPV18	E2	TDAGTWDKTA	145	10		33360
HPV18	E2	TGILTVTY	330	8		33361
HPV18	E2	TGILTVTYH	330	9		33362
HPV18	E2	TGNNKRRK	273	8		33363
HPV18	E2	TGTWEVHF	186	8		33364
HPV18	E2	TLNHQVVP	57	9		33365
HPV18	E2	TLNHQVVPAY	57	10		33366
HPV18	E2	TSAATRP	243	9		33367
HPV18	E2	TSAATRP	207	8		33368
HPV18	E2	TTPIHLK	286	8		33369
HPV18	E2	TTPIHLK	286	11		33370
HPV18	E2	TVQVYFDG	120	10		33371
HPV18	E2	TVQVYFDG	211	9		33372
HPV18	E2	TVSATQLVK	231	8		33373
HPV18	E2	TVSVGTAK	231	10		33374
HPV18	E2	TVSVGTAKTY	231	10		33375
HPV18	E2	TVYHSETQR	334	8		33376
HPV18	E2	VAWDSVYY	136	8		33377
HPV18	E2	VSATQLVK	212	8		33378
HPV18	E2	VSHRGLYY	157	8		33379
HPV18	E2	VSHRGLYYVK	157	10		33380
HPV18	E2	VSVGTAKTY	232	9		33381
HPV18	E2	VYHSETQR	335	9		33382
HPV18	E2	VYHSETQR	335	11		33383
HPV18	E2	VVPAYNISK	62	9		33384
HPV18	E2	VVPAYNISK	62	11		33385
HPV18	E2	WDKATATCVSH	150	10		33386
HPV18	E2	WDKATATCVSH	150	11		33387
HPV18	E2	WDSVYYMTDA	138	10		33388
HPV18	E2	WTGAGNEK	322	8		33389
HPV18	E2	YGTGTWEVH	183	10		33390
HPV18	E2	YGTGTWEVH	183	11		33391
HPV18	E2	YGTGTWEVH	183	11		33392
HPV18	E2	YGTSAATR	240	9		33393
HPV18	E2	YIEFKSECEK	173	10		33394

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E2	YIEFKSECEKY	173	11		33393
HPV18	E2	YMTDAGTWDK	143	10		33394
HPV18	E2	YSSTVSVGTA	228	10		33395
HPV18	E2	YSSTVSVGTAK	228	11		33396
HPV18	E2	YVAWDSVY	135	8		33397
HPV18	E2	YVAWDSVYY	135	9		33398
HPV18	E2	YVKEGYNTF	164	9		33399
HPV18	E2	YVKEGYNTFY	164	10		33400
HPV18	E5	AFTVYVFCF	49	9		33401
HPV18	E5	ATAFTVYVF	47	9		33402
HPV18	E5	ATAFTVYVFCF	47	11		33403
HPV18	E5	CAYAWVLVF	29	9		33404
HPV18	E5	CAYAWVLVIFY	29	11		33405
HPV18	E5	CFCVCMYVCCCH	9	11		33406
HPV18	E5	CFLPMLLLH	56	10		33407
HPV18	E5	CMCAYAWVLVF	27	11		33408
HPV18	E5	CVCMYVCCCH	11	9		33409
HPV18	E5	FCFCVCMY	8	8		33410
HPV18	E5	FCFLPMLLLH	55	11		33411
HPV18	E5	FCVCMYVCCCH	10	10		33412
HPV18	E5	FLFCFCVCMY	6	10		33413
HPV18	E5	FLLPMLLLH	57	9		33414
HPV18	E5	FLLPMLLLHH	57	11		33415
HPV18	E5	FTVYVFCF	50	8		33416
HPV18	E5	FVYIVVITSPA	37	11		33417
HPV18	E5	IFLFCFCVCMY	5	11		33418
HPV18	E5	ITSPATAF	43	8		33419
HPV18	E5	ITSPATAFTVY	43	11		33420
HPV18	E5	IVVITSPA	40	8		33421
HPV18	E5	IVVITSPATA	40	10		33422
HPV18	E5	IVVITSPATAF	40	11		33423
HPV18	E5	LFCFCVCMY	7	9		33424
HPV18	E5	LFPMLLLH	58	8		33425
HPV18	E5	LFPMLLLHH	58	10		33426
HPV18	E5	LFPMLLLHHHA	58	11		33427
HPV18	E5	LLPSVCMCA	22	9		33428
HPV18	E5	LLPSVCMCA	22	10		33429
HPV18	E5	LLPSVCMCA	22	11		33430
HPV18	E5	LLPSVCMCA	22	9		33431
HPV18	E5	LSLIFLFCF	2	10		33432
HPV18	E5	MCAYAWVLVF	28	10		33433
HPV18	E5	MLLLHHHA	61	8		33434
HPV18	E5	MLSLIFL	1	10		33435
HPV18	E5	MLSLIFLFCF	1	8		33436
HPV18	E5	PATAFTVY	46	10		33437
HPV18	E5	PATAFTVYVF	46	10		33438
HPV18	E5	PLPSVCMCA	21	10		33439

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E5	PLLPSCVMCAY	21	11		33439
HPV18	E5	PMLLLHHI	60	8		33440
HPV18	E5	PMLLLHHIHA	60	9		33441
HPV18	E5	PSVCMCAY	24	8		33442
HPV18	E5	PSVCMCAYA	24	9		33443
HPV18	E5	SLIFLFCF	3	8		33444
HPV18	E5	SVCMCAYA	25	8		33445
HPV18	E5	TAFTVYVF	48	8		33446
HPV18	E5	TAFTVYVFCF	48	10		33447
HPV18	E5	TSPATAFTVY	44	10		33448
HPV18	E5	VCMYVCCH	12	8		33449
HPV18	E5	VITSPATA	42	8		33450
HPV18	E5	VITSPATAF	42	9		33451
HPV18	E5	VVITSPATA	41	9		33452
HPV18	E5	VVITSPATAF	41	10		33453
HPV18	E5	YAWVLVIFY	31	9		33454
HPV18	E5	YIVVITSPA	39	9		33455
HPV18	E5	YIVVITSPATA	39	11		33456
HPV18	E6	AACHKCIDF	63	9		33457
HPV18	E6	AACHKCIDFY	63	10		33458
HPV18	E6	ACHKCIDF	64	8		33459
HPV18	E6	ACHKCIDFY	64	9		33460
HPV18	E6	ACHKCIDFYSR	64	11		33461
HPV18	E6	AFKDLFVY	48	9		33462
HPV18	E6	AFKDLFVYR	48	10		33463
HPV18	E6	AGHYRGQCH	131	9	0.0005	33464
HPV18	E6	CCNRARQER	141	9		33465
HPV18	E6	CIDFYSRIR	68	9	0.0001	33466
HPV18	E6	CLRCQKPLNPA	105	11		33467
HPV18	E6	DFYSRIRELR	70	10	0.0002	33468
HPV18	E6	DFYSRIRELRH	70	11		33469
HPV18	E6	DIEITCVY	27	8		33470
HPV18	E6	DIEITCVYCK	27	10	0.0089	33471
HPV18	E6	DSIPHAACII	58	9	0.0005	33472
HPV18	E6	DSIPHAACIIK	58	10		33473
HPV18	E6	DSVYGDITLEK	83	10	0.0005	33474
HPV18	E6	EDPTRRPY	5	8		33475
HPV18	E6	EDPTRRPYK	5	9		33476
HPV18	E6	EFAFKDLF	46	8		33477
HPV18	E6	EFAFKDLFVVY	46	11		33478
HPV18	E6	EITCVYCK	29	8		33479
HPV18	E6	ELRHYSDSVY	77	10	0.0002	33480
HPV18	E6	ELTEVFEF	40	8		33481
HPV18	E6	ELTEVFEFA	40	9		33482
HPV18	E6	ELTEVFEFAF	40	10		33483
HPV18	E6	ELTEVFEFAFK	40	11		33484

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E6	EVFEFAFK	43	8	0.0025	33485
HPV18	E6	EVFEFAFKDLF	43	11		33486
HPV18	E6	FAFKDLFVVY	47	10		33487
HPV18	E6	FAFKDLFVVYR	47	11		33488
HPV18	E6	FVVYRDSIPH	53	10		33489
HPV18	E6	FVVYRDSIPHA	53	11		33490
HPV18	E6	GLYNLLIR	97	8		33491
HPV18	E6	GLYNLLIRCLR	97	11		33492
HPV18	E6	IIAACHKCIDF	62	10		33493
HPV18	E6	HAACHKCIDFY	62	11		33494
HPV18	E6	HLNEKRRF	120	8		33495
HPV18	E6	HLNEKRRFH	120	9		33496
HPV18	E6	HSCCNAR	139	8		33497
HPV18	E6	HSCCNARQER	139	11		33498
HPV18	E6	IAGHYRGQCH	130	10		33499
HPV18	E6	IDFYSRIR	69	8		33500
HPV18	E6	IDFYSRIRELR	69	11		33501
HPV18	E6	KCIDFYSR	67	8		33502
HPV18	E6	KCIDFYSRIR	67	10		33503
HPV18	E6	KDLFVVYR	50	8		33504
HPV18	E6	KLRHLNEK	117	8		33505
HPV18	E6	KLRHLNEKR	117	9	0.0250	33506
HPV18	E6	KLRHLNEKRR	117	10	0.0130	33507
HPV18	E6	KLRHLNEKRRF	117	11		33508
HPV18	E6	KLNTGLY	92	8		33509
HPV18	E6	KTVLELTVF	36	10		33510
HPV18	E6	LFVVYRDSIPH	52	11		33511
HPV18	E6	LIRCLRCQK	102	9	0.0190	33512
HPV18	E6	LLIRCLRCQK	101	10	0.0470	33513
HPV18	E6	LTEVEFA	41	8		33514
HPV18	E6	LTEVEFAF	41	9		33515
HPV18	E6	LTEVEFAFK	41	10	0.0001	33516
HPV18	E6	MARFEDPTR	1	9		33517
HPV18	E6	MARFEDPTRR	1	10		33518
HPV18	E6	NIAGHYRGQCH	129	11		33519
HPV18	E6	NLLIRCLR	100	8		33520
HPV18	E6	NLLIRCLRCQK	100	11		33521
HPV18	E6	NTGLYNLLIR	95	10	0.0002	33522
HPV18	E6	PAEKLRLNEK	114	11		33523
HPV18	E6	PLNPAEKLIR	111	9	0.0002	33524
HPV18	E6	PLNPAEKLRIH	111	10		33525
HPV18	E6	QCHSCCNR	137	8		33526
HPV18	E6	QCHSCCNRRA	137	9		33527
HPV18	E6	QCHSCCNRAR	137	10		33528
HPV18	E6	QDIEITCVY	26	9		33529
HPV18	E6	QDIEITCVYCK	26	11		33530

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E6	RARQERLQR	144	9	0.0007	33531
HPV18	E6	RARQERLQRR	144	10		33532
HPV18	E6	RARQERLQRRR	144	11		33533
HPV18	E6	RCQKPLNPA	107	9		33534
HPV18	E6	RCQKPLNPAEK	107	11		33535
HPV18	E6	RDSIPHA	57	8		33536
HPV18	E6	RDSIPHAACH	57	10		33537
HPV18	E6	RDSIPHAACHK	57	11		33538
HPV18	E6	RFEDPTRR	3	8		33539
HPV18	E6	RFEDPTRRPY	3	10	0.0002	33540
HPV18	E6	RFEDPTRRPYK	3	11		33541
HPV18	E6	RFHNIAGH	126	8		33542
HPV18	E6	RFHNIAGHY	126	9	0.0005	33543
HPV18	E6	RFHNIAGHYR	126	10	0.0023	33544
HPV18	E6	RGQCHSCCNR	135	10		33545
HPV18	E6	RGQCHSCCNR	135	11		33546
HPV18	E6	RIRELRHY	74	8		33547
HPV18	E6	SCCNRARQER	140	10		33548
HPV18	E6	SDSVYGDITLEK	82	11		33549
HPV18	E6	SIPHAACH	59	8		33550
HPV18	E6	SIPHAACHK	59	9	0.0170	33551
HPV18	E6	SLQDIETCVY	24	11		33552
HPV18	E6	SVYGDITLEK	84	9	0.0800	33553
HPV18	E6	TGLYNLLIR	96	9	0.0005	33554
HPV18	E6	TLEKLTNTGLY	89	11	0.0003	33555
HPV18	E6	TVLELTVF	37	9		33556
HPV18	E6	TVLELTVFEF	37	11		33557
HPV18	E6	VFEFAFKDLF	44	10		33558
HPV18	E6	VLELTVF	38	8		33559
HPV18	E6	VLELTVFEF	38	10		33560
HPV18	E6	VLELTVFEFA	38	11		33561
HPV18	E6	VVYRDSIPH	54	9	0.1200	33562
HPV18	E6	VVYRDSIPHA	54	10		33563
HPV18	E6	VVYRDSIPHA	54	11		33564
HPV18	E6	YSRRELRL	72	8		33565
HPV18	E6	YSRRELRLH	72	9		33566
HPV18	E6	YSRRELRIY	72	10	0.0001	33567
HPV18	E7	ADDLRAFQQLF	80	11		33568
HPV18	E7	ATLQDIVLH	6	9		33569
HPV18	E7	CCKCEARIK	65	9		33570
HPV18	E7	CMCKCKEA	63	8		33571
HPV18	E7	CMCKCKEAR	63	9		33572
HPV18	E7	CMCKCKEARIK	63	11	0.0014	33573
HPV18	E7	DDLRAFQQLF	81	10		33574
HPV18	E7	DGVNIQHLP	42	10		33575
HPV18	E7	DGVNIQHLPAR	42	11		33576

Table XVI
A03. Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	E7	DLRAFFQLF	82	9		33577
HPV18	E7	EIDGVNHQH	40	9		33578
HPV18	E7	EIPVDLLCH	20	9		33579
HPV18	E7	ESSADDLR	77	8		33580
HPV18	E7	ESSADDLRA	77	9		33581
HPV18	E7	ESSADDLRAF	77	10		33582
HPV18	E7	GVNHQHLPAR	43	9		33583
HPV18	E7	GVNHQHLPAR	43	10		33584
HPV18	E7	GVNHQHLPARR	43	11		33585
HPV18	E7	HLPARRAEPQR	48	11		33586
HPV18	E7	HTMLCMCK	59	9	0.0640	33587
HPV18	E7	IDGVNHQH	41	8		33588
HPV18	E7	IDGVNHQHLPAR	41	11		33589
HPV18	E7	KATLQDIVLH	5	10		33590
HPV18	E7	KLVVSSA	73	8		33591
HPV18	E7	LCMCKCEA	62	9		33592
HPV18	E7	LCMCKCEAR	62	10		33593
HPV18	E7	LFLNTLSF	89	8		33594
HPV18	E7	LSFVCPWCA	94	9	0.0005	33595
HPV18	E7	LVVSSADDLR	74	11		33596
HPV18	E7	MCKCEAR	64	8		33597
HPV18	E7	MCKCEARIK	64	10		33598
HPV18	E7	MLCMCKCEA	61	10		33599
HPV18	E7	MLCMCKCEAR	61	11		33600
HPV18	E7	NDEIDGVNH	38	9		33601
HPV18	E7	NDEIDGVNHQH	38	11		33602
HPV18	E7	NTLSFVCPWCA	92	11		33603
HPV18	E7	PARRAEPQR	50	9		33604
HPV18	E7	PARRAEPQRH	50	10		33605
HPV18	E7	QLFLNTLSF	88	9	0.0005	33606
HPV18	E7	RIKLVVSSA	71	10	0.0005	33607
HPV18	E7	SADDLRAF	79	8		33608
HPV18	E7	SFVCPWCA	95	8		33609
HPV18	E7	SSADDLRA	78	8		33610
HPV18	E7	SSADDLRAF	78	9		33611
HPV18	E7	TLQDIVLH	7	8		33612
HPV18	E7	TLSFVCPWCA	93	10		33613
HPV18	E7	TMLCMCK	60	8	0.0240	33614
HPV18	E7	TMLCMCKCEA	60	11		33615
HPV18	E7	VVSSADDLR	75	10		33616
HPV18	E7	VVSSADDLRA	75	11		33617
HPV18	L1	AAPAKNDPY	494	10		33618
HPV18	L1	AATSNVSEDR	195	11		33619
HPV18	L1	ACAGVEIGR	162	9		33620
HPV18	L1	ADPYGDSMF	300	9		33621
HPV18	L1	ADPYGDSMFF	300	10		33622

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	ADVMSYIH	447	8		33623
HPV18	L1	AGGKNQDIPK	115	11		33624
HPV18	L1	AIEGHWAK	225	8		33625
HPV18	L1	AIEGHWAKGTA	225	11		33626
HPV18	L1	AITCQKDA	487	8		33627
HPV18	L1	AITCQKDA	487	9		33628
HPV18	L1	AITCQKDAAPA	487	11		33629
HPV18	L1	ALWRPSDNTVY	63	11		33630
HPV18	L1	AMDFSTLQDTK	268	11		33631
HPV18	L1	ASPGSCVY	345	8		33632
HPV18	L1	ASTQSPVPGQY	407	11		33633
HPV18	L1	ATKFKQYSRH	419	9		33634
HPV18	L1	ATKFKQYSRH	419	10		33635
HPV18	L1	ATSNVSEVDR	196	10		33636
HPV18	L1	ATSSKPA	552	8		33637
HPV18	L1	ATTSSKPAK	552	9		33638
HPV18	L1	ATTSSKPAKR	552	10		33639
HPV18	L1	CAGVEIGR	163	8		33640
HPV18	L1	CAPAIGEH	222	8		33641
HPV18	L1	CAPAIGEHWA	222	10		33642
HPV18	L1	CAPAIGEHWAK	222	11		33643
HPV18	L1	CGHYIILF	42	8		33644
HPV18	L1	CGHYIILFLR	42	10		33645
HPV18	L1	CILGCAPA	218	8		33646
HPV18	L1	CLRREQLF	310	8		33647
HPV18	L1	CLRREQLFA	310	9		33648
HPV18	L1	CLRREQLFAR	310	10		33649
HPV18	L1	CLRREQLFARH	310	11		33650
HPV18	L1	CLYTRVLILH	2	10		33651
HPV18	L1	CLYTRVLILHY	2	11		33652
HPV18	L1	DAAPAEK	493	8		33653
HPV18	L1	DAAPAEKNDPY	493	11		33654
HPV18	L1	DATKFKQY	418	8		33655
HPV18	L1	DATKFKQYSR	418	10		33656
HPV18	L1	DATKFKQYSRH	418	11		33657
HPV18	L1	DCPPELK	245	8		33658
HPV18	L1	DDTESSHA	188	8		33659
HPV18	L1	DDTESSHAA	188	9		33660
HPV18	L1	DDYVTPTISF	86	10		33661
HPV18	L1	DDYVTPTISFY	86	11		33662
HPV18	L1	DFSTLQDTK	270	9		33663
HPV18	L1	DGDMVDITGY	258	9		33664
HPV18	L1	DGDMVDITGYGA	258	11		33665
HPV18	L1	DICQICK	284	8		33666
HPV18	L1	DICQICKY	284	9		33667
HPV18	L1	DIPKVSAY	122	8		33668

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	DIPKVSAYQY	122	10		33669
HPV18	L1	DIPKVSAYQYR	122	11		33670
HPV18	L1	DLDDYPLGR	520	9		33671
HPV18	L1	DLDDYPLGRK	520	10		33672
HPV18	L1	DLDDYPLGRKF	520	11		33673
HPV18	L1	DMVDTGYGA	260	9		33674
HPV18	L1	DSMFFCLR	305	8		33675
HPV18	L1	DSMFFCLR	305	9		33676
HPV18	L1	DSQLFNKPY	364	9		33677
HPV18	L1	DTSSHAA	189	8		33678
HPV18	L1	DTGYGAMDF	263	9		33679
HPV18	L1	DTSYNPETQR	148	11		33680
HPV18	L1	DTVPQSLY	330	8		33681
HPV18	L1	DTVPQSLYIK	330	10		33682
HPV18	L1	DTYRFVQSA	478	10		33683
HPV18	L1	DVRDNVSDY	203	10		33684
HPV18	L1	DVRDNVSDYK	203	11		33685
HPV18	L1	EDGDMVDTGY	257	10		33686
HPV18	L1	EDVRDNVSDY	202	11		33687
HPV18	L1	ETQRLVWA	155	8		33688
HPV18	L1	ETQRLVWACA	155	10		33689
HPV18	L1	FARHFWNR	317	8		33690
HPV18	L1	FARHFWNRA	317	9		33691
HPV18	L1	FCLRREQLF	309	9		33692
HPV18	L1	FCLRREQLF	309	10		33693
HPV18	L1	FCLRREQLFAR	309	11		33694
HPV18	L1	FFCLRREQLF	308	10		33695
HPV18	L1	FFCLRREQLF	308	11		33696
HPV18	L1	FGLPDTSIY	144	9		33697
HPV18	L1	FLQMALWR	59	8		33698
HPV18	L1	FLRNVNVF	49	8		33699
HPV18	L1	FLRNVNVPFIF	49	11		33700
HPV18	L1	FLVQAGLR	530	8		33701
HPV18	L1	FLVQAGLR	530	9		33702
HPV18	L1	FLVQAGLRK	530	10		33703
HPV18	L1	FSLDLQY	517	8		33704
HPV18	L1	FSTLQDTK	271	8		33705
HPV18	L1	FVQSVAITCQK	482	11		33706
HPV18	L1	GCAPAIGH	221	9		33707
HPV18	L1	GCAPAIGHWA	221	11		33708
HPV18	L1	GDCPPELK	244	9		33709
HPV18	L1	GDMVDTGY	259	8		33710
HPV18	L1	GDMVDTGYGA	259	10		33711
HPV18	L1	GDSMFFCLR	304	9		33712
HPV18	L1	GDSMFFCLR	304	10		33713
HPV18	L1	GDTVPSLY	329	9		33714

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	GDTVPSQLYIK	329	11		33715
HPV18	L1	GGGNKQDIPK	116	10		33716
HPV18	L1	GGNKQDIPK	117	9		33717
HPV18	L1	GLPDTSIY	145	8		33718
HPV18	L1	GLRRKPTIGPR	535	11		33719
HPV18	L1	GLSGHPFY	177	8		33720
HPV18	L1	GLSGHPFYNK	177	10		33721
HPV18	L1	GMPASPGSCVY	342	11		33722
HPV18	L1	GSIVTSDSQLF	358	11		33723
HPV18	L1	GVCWHNQLF	383	9		33724
HPV18	L1	GVGLSGHPF	175	9		33725
HPV18	L1	GVGLSGHPFY	175	10		33726
HPV18	L1	HIICGHY	38	8		33727
HPV18	L1	HLLPLYGPLY	13	10		33728
HPV18	L1	HLLPLYGPLYH	13	11		33729
HPV18	L1	HSILVYMH	30	9		33730
HPV18	L1	HVEEYDLQF	428	9		33731
HPV18	L1	HVEEYDLQFIF	428	11		33732
HPV18	L1	ICGHYIILF	41	9		33733
HPV18	L1	ICGHYIILFLR	41	11		33734
HPV18	L1	ICQSICKY	285	8		33735
HPV18	L1	ICQSICKYPDY	285	11		33736
HPV18	L1	IFLQMALWR	58	9		33737
HPV18	L1	IFQLCTITLTA	437	11		33738
HPV18	L1	IFYHAGSSR	94	9		33739
HPV18	L1	IGEHWAKGTA	226	10		33740
HPV18	L1	IGPRKRS	542	8		33741
HPV18	L1	IGPRKRSAPSA	542	11		33742
HPV18	L1	ICGHYIILF	40	10		33743
HPV18	L1	IIICGHYIILF	39	11		33744
HPV18	L1	ILFLRNVNVF	46	11		33745
HPV18	L1	ILFLRNVNVF	47	10		33746
HPV18	L1	ILGCAPAIGEII	219	11		33747
HPV18	L1	ILHYHLLPLY	9	10		33748
HPV18	L1	ITCQKDA	488	8		33749
HPV18	L1	ITCQKDAAPA	488	10		33750
HPV18	L1	ITLTADVMSY	443	10		33751
HPV18	L1	IVTSDSQLF	360	9		33752
HPV18	L1	IVTSDSQLFNK	360	11		33753
HPV18	L1	KDAAPAEK	492	9		33754
HPV18	L1	KDPYDKLK	500	8		33755
HPV18	L1	KDPYDKLKF	500	9		33756
HPV18	L1	KFGLPDTSIY	143	10		33757
HPV18	L1	KFKQYSRII	421	8		33758
HPV18	L1	KFLVQAGLR	529	9		33759
HPV18	L1	KFLVQAGLRR	529	10		33760

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	KFLVQAGLRRK	529	11		33761
HPV18	L1	KFSLDLQY	516	9		33762
HPV18	L1	KFWNVDLK	507	8		33763
HPV18	L1	KFWNVDLKEK	507	10		33764
HPV18	L1	KFWNVDLKEKF	507	11		33765
HPV18	L1	KGACKSR	232	8		33766
HPV18	L1	KLDDTESSH	186	9		33767
HPV18	L1	KLDDTESSHA	186	10		33768
HPV18	L1	KLDDTESSHAA	186	11		33769
HPV18	L1	KLKFWNVDLK	505	10		33770
HPV18	L1	KVSAYQVR	125	8		33771
HPV18	L1	KVSAYQYRVF	125	10		33772
HPV18	L1	KVSAYQYRVFR	125	11		33773
HPV18	L1	LCILGCAPA	217	9		33774
HPV18	L1	LCITLTA	440	8		33775
HPV18	L1	LDDTESSH	187	8		33776
HPV18	L1	LDDTESSHA	187	9		33777
HPV18	L1	LDDTESSHAA	187	10		33778
HPV18	L1	LDICQSICKY	283	9		33779
HPV18	L1	LDLDQYPLGR	283	10		33780
HPV18	L1	LDLDQYPLGRK	519	10		33781
HPV18	L1	LDQYPLGR	519	11		33782
HPV18	L1	LDQYPLGRK	521	8		33783
HPV18	L1	LDQYPLGRKF	521	9		33784
HPV18	L1	LFARHFWNR	316	10		33785
HPV18	L1	LFARHEWNR	316	9		33786
HPV18	L1	LFARNVNF	48	10		33787
HPV18	L1	LFNKPYWLH	367	9		33788
HPV18	L1	LFNKPYWLHK	367	9		33789
HPV18	L1	LFNKPYWLHKA	367	10		33790
HPV18	L1	LGCAPAIGE	220	11		33791
HPV18	L1	LGRKFLVQA	526	10		33792
HPV18	L1	LGVGLSGH	174	9		33793
HPV18	L1	LGVGLSGHPF	174	8		33794
HPV18	L1	LGVGLSGHPFY	174	10		33795
HPV18	L1	LILHYHLLPLY	14	11		33796
HPV18	L1	LLPLYGPLY	14	8		33797
HPV18	L1	LLPLYGPLYH	14	9		33798
HPV18	L1	LLTVGNPY	103	10		33799
HPV18	L1	LLTVGNPYF	103	8		33800
HPV18	L1	LLTVGNPYFR	103	9		33801
HPV18	L1	LSGHPFYNK	178	10		33802
HPV18	L1	LTADVMSY	445	9		33803
HPV18	L1	LTADVMSYH	445	8		33804
HPV18	L1	LTVGNPYF	445	10		33805
HPV18	L1	LTVGNPYF	104	8		33806

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	LTVGNPYFR	104	9		33807
HPV18	L1	LVQAGLR	531	8		33808
HPV18	L1	LVQAGLRK	531	9		33809
HPV18	L1	MCLYTRVLILH	1	11		33810
HPV18	L1	MDFTLQDTK	269	10		33811
HPV18	L1	MFCLRREQLF	307	11		33812
HPV18	L1	MGDTVPQSLY	328	10		33813
HPV18	L1	MSADPYGDSMF	298	11		33814
HPV18	L1	MVDTGYGA	261	8		33815
HPV18	L1	MVDTGYGAMDF	261	11		33816
HPV18	L1	MVHIICGH	36	9		33817
HPV18	L1	MVHIICGHY	36	10		33818
HPV18	L1	NGVCWIINQLF	382	10		33819
HPV18	L1	NSSILEDWNF	457	10		33820
HPV18	L1	NTVYLPPPSVA	70	11		33821
HPV18	L1	NVDLKEF	510	8		33822
HPV18	L1	NVFIPLQMA	54	10		33823
HPV18	L1	NVNVFPIF	52	8		33824
HPV18	L1	PAENKDPY	496	8		33825
HPV18	L1	PAENKDPYDK	496	10		33826
HPV18	L1	PAIGHWA	224	8		33827
HPV18	L1	PAIGHWAK	224	9		33828
HPV18	L1	PAKRVRVR	558	8		33829
HPV18	L1	PAKRVRRA	558	9		33830
HPV18	L1	PAKRVRVRAR	558	10		33831
HPV18	L1	PAKRVRVRARK	558	11		33832
HPV18	L1	PASPGSCVY	344	9		33833
HPV18	L1	PDYLQMSA	293	8		33834
HPV18	L1	PDYLQMSADPY	293	11		33835
HPV18	L1	PGQYDATK	414	8		33836
HPV18	L1	PGQYDATKF	414	9		33837
HPV18	L1	PGQYDATKFK	414	10		33838
HPV18	L1	PIFLQMALWR	57	10		33839
HPV18	L1	PLDICOSICK	282	10		33840
HPV18	L1	PLDICOSICKY	282	11		33841
HPV18	L1	PLGRKFLVQA	525	10		33842
HPV18	L1	PLGVGLSGH	173	9		33843
HPV18	L1	PLGVGLSGHPF	173	11		33844
HPV18	L1	PLHSILVY	28	8		33845
HPV18	L1	PLHSILVYMH	28	11		33846
HPV18	L1	PLPLHSILVY	26	10		33847
HPV18	L1	PLYGPLYH	16	8		33848
HPV18	L1	PLYGPLYHPR	16	10		33849
HPV18	L1	PLYHPRPLPH	20	11		33850
HPV18	L1	PSATTSSK	550	8		33851
HPV18	L1	PSATTSSKPA	550	10		33852

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	PSATSSKPAK	550	11		33853
HPV18	L1	PSTNLITCA	399	9		33854
HPV18	L1	PTIGPRKR	540	8		33855
HPV18	L1	PTIGPRKRSA	540	10		33856
HPV18	L1	PTSIFYHIA	91	8		33857
HPV18	L1	PTTSLVDTY	472	9		33858
HPV18	L1	PTTSLVDTYR	472	10		33859
HPV18	L1	PTTSLVDTYRF	472	11		33860
HPV18	L1	PVPGQYDA	412	8		33861
HPV18	L1	PVPGQYDATK	412	10		33862
HPV18	L1	PVPGQYDATKF	412	11		33863
HPV18	L1	QDIPKUSA	121	8		33864
HPV18	L1	QDIPKVSAY	121	9		33865
HPV18	L1	QDIPKVSAYQY	121	11		33866
HPV18	L1	QGDCPPLELK	243	10		33867
HPV18	L1	QGHNGVCWH	378	10		33868
HPV18	L1	QLCILGCA	216	8		33869
HPV18	L1	QLCILGCAPA	216	10		33870
HPV18	L1	QLCTITLTA	439	9		33871
HPV18	L1	QLFARHFWNR	315	10		33872
HPV18	L1	QLFARHFWNRA	315	11		33873
HPV18	L1	QLFNKPYWLH	366	10		33874
HPV18	L1	QLFNKPYWLHK	366	11		33875
HPV18	L1	QLPDPNKF	137	8		33876
HPV18	L1	QSICKYPDY	287	9		33877
HPV18	L1	QSPVPGQY	410	8		33878
HPV18	L1	QSPVPGQYDA	410	10		33879
HPV18	L1	QSVAITCQK	484	9		33880
HPV18	L1	QSVAITCQKDA	484	11		33881
HPV18	L1	QTQLCILGCA	214	10		33882
HPV18	L1	RDNVSVDY	205	8		33883
HPV18	L1	RDNVSVDYK	205	9		33884
HPV18	L1	RLLTGPNPY	102	9		33885
HPV18	L1	RLLTGPNPYF	102	10		33886
HPV18	L1	RLLTGPNPYFR	102	11		33887
HPV18	L1	RSAPSATTSSK	547	11		33888
HPV18	L1	RVLLHYH	6	8		33889
HPV18	L1	RVPAGGNGK	112	9		33890
HPV18	L1	RVQLPDPNK	135	9		33891
HPV18	L1	RVQLPDPNKF	135	10		33892
HPV18	L1	RVRVRARK	561	8		33893
HPV18	L1	RVVNTDDY	81	8		33894
HPV18	L1	SADPYGDSMF	299	10		33895
HPV18	L1	SADPYGDSMFF	299	11		33896
HPV18	L1	SAPSATTSSK	548	10		33897
HPV18	L1	SATTSSKPA	551	9		33898

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	SATTSSKPAK	551	10		33899
HPV18	L1	SATTSSKPAKR	551	11		33900
HPV18	L1	SAYQYRVF	127	8		33901
HPV18	L1	SAYQYRVFR	127	9		33902
HPV18	L1	SDSQLFNK	363	8		33903
HPV18	L1	SDSQLFNKPY	363	10		33904
HPV18	L1	SGIIPFYNK	179	8		33905
HPV18	L1	SICKYPDY	288	8		33906
HPV18	L1	SIFYHAGSSR	93	10		33907
HPV18	L1	SILEDWNF	459	8		33908
HPV18	L1	SILVYMHV	31	8		33909
HPV18	L1	SIVTSDSQLF	359	10		33910
HPV18	L1	SIYNPETQR	150	9		33911
HPV18	L1	SLDLQYPLGR	518	11		33912
HPV18	L1	SLVDYTRF	475	8		33913
HPV18	L1	SLYIKGTGMPA	335	11		33914
HPV18	L1	SMFCLRR	306	8		33915
HPV18	L1	SSILEDWNF	458	9		33916
HPV18	L1	SSKPAKRVR	555	9		33917
HPV18	L1	SSKPAKRVRVR	555	11		33918
HPV18	L1	SSRLLTGPNPY	100	11		33919
HPV18	L1	STNLITCA	400	8		33920
HPV18	L1	STQSPVPGQY	408	10		33921
HPV18	L1	SVAITCQK	485	8		33922
HPV18	L1	SVAITCQKDA	485	10		33923
HPV18	L1	SVAITCQKDA	485	11		33924
HPV18	L1	SVARVNTDDY	78	11		33925
HPV18	L1	TADVMSYIH	446	9		33926
HPV18	L1	TCQKDAAPA	489	9		33927
HPV18	L1	TDDYVTPTSIF	85	11		33928
HPV18	L1	TGYGAMDF	264	8		33929
HPV18	L1	TIGPRKRS	541	9		33930
HPV18	L1	TITLTADVMSY	442	11		33931
HPV18	L1	TLTADVMSY	444	9		33932
HPV18	L1	TLTADVMSYIH	444	11		33933
HPV18	L1	TMGDTVQSLY	327	11		33934
HPV18	L1	TSDSQLFNK	362	9		33935
HPV18	L1	TSDSQLFNKPY	362	11		33936
HPV18	L1	TSIFYHAGSSR	92	11		33937
HPV18	L1	TSIYNPETQR	149	10		33938
HPV18	L1	TSLVDTYR	474	8		33939
HPV18	L1	TSLVDTYRF	474	9		33940
HPV18	L1	TSNVSEDRV	197	9		33941
HPV18	L1	TSSKPAKR	554	8		33942
HPV18	L1	TSSKPAKRVR	554	10		33943
HPV18	L1	TTPSTNLITCA	397	11		33944

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	TTSLVDY	473	8		33945
HPV18	L1	TTSLVDYR	473	9		33946
HPV18	L1	TTSLVDYRF	473	10		33947
HPV18	L1	TTSSKPAK	553	8		33948
HPV18	L1	TTSSKPAKR	553	9		33949
HPV18	L1	TTSSKPAKRV	553	11		33950
HPV18	L1	TVGNPYFR	105	8		33951
HPV18	L1	TVGNPYFRVPA	105	11		33952
HPV18	L1	TVQSLYIK	331	9		33953
HPV18	L1	TVYLPSPSA	71	10		33954
HPV18	L1	TVYLPSPSVAR	71	11		33955
HPV18	L1	VAITCQKDA	486	9		33956
HPV18	L1	VAITCQKDA	486	10		33957
HPV18	L1	VARVNTDDY	79	10		33958
HPV18	L1	VCWHNQLF	384	8		33959
HPV18	L1	VDITYGAMDF	262	10		33960
HPV18	L1	VDITYRFVQSA	477	11		33961
HPV18	L1	VPIFLQMA	55	9		33962
HPV18	L1	VFRVQLPDPNK	133	11		33963
HPV18	L1	VGLSGHPF	176	8		33964
HPV18	L1	VGLSGHPFY	176	9		33965
HPV18	L1	VGLSGHPFYNK	176	11		33966
HPV18	L1	VGNPYFRVPA	106	10		33967
HPV18	L1	VSAYQYRVF	126	9		33968
HPV18	L1	VSAYQYRVFR	126	10		33969
HPV18	L1	VTPTSIFY	89	8		33970
HPV18	L1	VTPTSIFYH	89	9		33971
HPV18	L1	VTPTSIFYHA	89	10		33972
HPV18	L1	VTSDSQLF	361	8		33973
HPV18	L1	VTSDSQLFNK	361	10		33974
HPV18	L1	WACAGVEIGR	161	10		33975
HPV18	L1	WAKGTACK	230	8		33976
HPV18	L1	WAKGTACKSR	230	10		33977
HPV18	L1	WLHKAQGH	373	8		33978
HPV18	L1	YDATKFKQY	417	9		33979
HPV18	L1	YDATKFKQYSR	417	11		33980
HPV18	L1	YFRVPAGGKNK	110	11		33981
HPV18	L1	YGDMSFFCLR	303	10		33982
HPV18	L1	YGDMSFFCLRR	303	11		33983
HPV18	L1	YGPLYHPR	18	8		33984
HPV18	L1	YIKGTGMPA	337	9		33985
HPV18	L1	YLPSPSA	73	8		33986
HPV18	L1	YLPSPSVAR	73	9		33987
HPV18	L1	YMQMSADPY	295	9		33988
HPV18	L1	YMVHIIICGH	35	10		33989
HPV18	L1	YMVHIIICGHI	35	11		33990

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L1	YSRHVEEY	425	8		33991
HPV18	L1	YTRVLILH	4	8		33992
HPV18	L1	YTRVLILHY	4	9		33993
HPV18	L1	YTRVLILHYH	4	10		33994
HPV18	L1	YVTPTSIF	88	8		33995
HPV18	L1	YVTPTSIFY	88	9		33996
HPV18	L1	YVTPTSIFYH	88	10		33997
HPV18	L1	YVTPTSIFYHA	88	11		33998
HPV18	L2	AFEPVDTLTF	255	11		33999
HPV18	L2	AGRLYSR	222	8		34000
HPV18	L2	AGRLYSRA	222	9		34001
HPV18	L2	AGRLYSRAY	222	10		34002
HPV18	L2	ALTSRRGTVR	286	10		34003
HPV18	L2	ALTSRRGTVRF	286	11		34004
HPV18	L2	ASTQYIGIH	423	9		34005
HPV18	L2	ASVTDLYK	12	8		34006
HPV18	L2	ASVTDLYKTCK	12	11		34007
HPV18	L2	ATEDNDLF	341	8		34008
HPV18	L2	ATEDNDLFDIY	341	11		34009
HPV18	L2	DFMDIIRLH	275	9		34010
HPV18	L2	DFMDIIRLHR	275	10		34011
HPV18	L2	DIIRLIIRPA	278	9		34012
HPV18	L2	DISPIAPSPEY	322	11		34013
HPV18	L2	DITSAGTTTPA	129	11		34014
HPV18	L2	DIYADDMDPA	349	10		34015
HPV18	L2	DMDPAVPVPSR	354	11		34016
HPV18	L2	DSDFMHIR	273	9		34017
HPV18	L2	DSDFMHIRLH	273	11		34018
HPV18	L2	DSSVVTSGA	109	9		34019
HPV18	L2	DSSVVTSGAPR	109	11		34020
HPV18	L2	DTTLTFDPR	260	9		34021
HPV18	L2	EDNDLFDIY	343	9		34022
HPV18	L2	EDNDLFDIYA	343	10		34023
HPV18	L2	EDSSVVTSGA	108	10		34024
HPV18	L2	EGTTLADK	36	8		34025
HPV18	L2	EIPLQTFA	194	8		34026
HPV18	L2	ELQPLVSA	334	8		34027
HPV18	L2	EVPTQGEVA	169	9		34028
HPV18	L2	FADGFVAA	455	8		34029
HPV18	L2	FDIYADDMDPA	348	11		34030
HPV18	L2	FFADGFVA	454	8		34031
HPV18	L2	FFADGFVAA	454	9		34032
HPV18	L2	FFKYSPTISSA	371	11		34033
HPV18	L2	FIPKKRRK	443	8		34034
HPV18	L2	FIPKKRRKRPVY	443	11		34035
HPV18	L2	FLTRPSSLITY	241	11		34036

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L2	FMDIIRLIH	276	8		34037
HPV18	L2	FMDIIRLHR	276	9		34038
HPV18	L2	FMDIIRLHRPA	276	11		34039
HPV18	L2	FSRLGQRA	296	8		34040
HPV18	L2	FSRLGQRATMF	296	11		34041
HPV18	L2	FTRSGTQIGA	306	10		34042
HPV18	L2	FTRSGTQIGAR	306	11		34043
HPV18	L2	FVGTPSTGTH	181	10		34044
HPV18	L2	GARVHFYH	314	8		34045
HPV18	L2	GIGTSGTGGR	58	11		34046
HPV18	L2	GIHGTTHY	429	8		34047
HPV18	L2	GS GTGGRTGY	62	10		34048
HPV18	L2	GTCPPDVVPK	25	10		34049
HPV18	L2	GTGGRIGY	64	8		34050
HPV18	L2	GTSGGTGGR	60	9		34051
HPV18	L2	GTHYYLWPLY	432	10		34052
HPV18	L2	GTHYYLWPLY	432	11		34053
HPV18	L2	GTPTSGTH	183	8		34054
HPV18	L2	GTPTSGTHGY	183	10		34055
HPV18	L2	GTQIGARVH	310	9		34056
HPV18	L2	GTQIGARVHF	310	10		34057
HPV18	L2	GTQIGARVHFY	310	11		34058
HPV18	L2	GTSGFDITSA	124	10		34059
HPV18	L2	GTVRFSLGQR	292	11		34060
HPV18	L2	HFYHDISPIA	318	10		34061
HPV18	L2	HGTHYYLWPLY	431	11		34062
HPV18	L2	HGYEIPLQTF	190	11		34063
HPV18	L2	IGARVHFY	313	8		34064
HPV18	L2	IGARVHFYH	313	9		34065
HPV18	L2	IGIHGTHY	428	8		34066
HPV18	L2	IGIHGTHY	428	9		34067
HPV18	L2	IGTSGTGGR	59	10		34068
HPV18	L2	IIIEVPQTGEVA	167	11		34069
HPV18	L2	IIRLHRPA	279	8		34070
HPV18	L2	ILQWSSLGIF	44	10		34071
HPV18	L2	ISPIAPSPEY	323	10		34072
HPV18	L2	ISSTPLPTVR	210	10		34073
HPV18	L2	ISSTPLPTVRR	210	11		34074
HPV18	L2	ISTNFTNPA	152	10		34075
HPV18	L2	ISTNFTNPAF	152	11		34076
HPV18	L2	ITSAGTTTPA	130	10		34077
HPV18	L2	ITYDNPFAF	249	8		34078
HPV18	L2	IVSPTAPA	416	8		34079
HPV18	L2	KILQWSSLGIF	43	11		34080
HPV18	L2	KVEGTTLA	34	8		34081
HPV18	L2	KVEGTTLADK	34	10		34082

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L2	LGQRATMF	299	8		34083
HPV18	L2	LGQRATMFTR	299	10		34084
HPV18	L2	LITYDNPA	248	8		34085
HPV18	L2	LITYDNPAF	248	9		34086
HPV18	L2	LTRPSSLITY	242	10		34087
HPV18	L2	LTSRRGTVR	287	9		34088
HPV18	L2	LTSRRGTVR	287	10		34089
HPV18	L2	LTSSWDVPVY	391	10		34090
HPV18	L2	LVSATEDNDLF	338	11		34091
HPV18	L2	MDIIRLHR	277	8		34092
HPV18	L2	MDIIRLHRPA	277	10		34093
HPV18	L2	MDPAVPVPSR	355	10		34094
HPV18	L2	MFTRSGTQIGA	305	11		34095
HPV18	L2	MVSHRAAR	1	8		34096
HPV18	L2	MVSHRAARR	1	9		34097
HPV18	L2	MVSHRAARRK	1	10		34098
HPV18	L2	MVSHRAARRKR	1	11		34099
HPV18	L2	NDLFDIYA	345	8		34100
HPV18	L2	NTVVDVGPTTR	79	10		34101
HPV18	L2	PALTSRRGTVR	285	11		34102
HPV18	L2	PASTQYIGIH	422	10		34103
HPV18	L2	PAVPVPSR	357	8		34104
HPV18	L2	PDSDFMDIIR	272	10		34105
HPV18	L2	PIAPSPEY	325	8		34106
HPV18	L2	PISTPLPTVR	209	11		34107
HPV18	L2	PIVSPTAPA	415	9		34108
HPV18	L2	PLPTVRRVA	214	9		34109
HPV18	L2	PLTSSWDVPVY	390	11		34110
HPV18	L2	PLYFIPK	439	8		34111
HPV18	L2	PLYFIPKK	439	9		34112
HPV18	L2	PLYFIPKKR	439	10		34113
HPV18	L2	PLYFIPKKRK	439	11		34114
HPV18	L2	PSRSTTSF	362	8		34115
HPV18	L2	PSRSTTSFA	362	9		34116
HPV18	L2	PSRSTTSFAF	362	10		34117
HPV18	L2	PSRSTTSFAFF	362	11		34118
HPV18	L2	PSSLITYDNPA	245	11		34119
HPV18	L2	PTAPASTQY	419	9		34120
HPV18	L2	PTFTGTSGF	120	9		34121
HPV18	L2	PTISSASSY	376	9		34122
HPV18	L2	PTSGTHGY	185	8		34123
HPV18	L2	PTVRRVAGPR	216	10		34124
HPV18	L2	PVDTLTLF	258	8		34125
HPV18	L2	PVDTLTLFDPR	258	11		34126
HPV18	L2	PVPSRSTTSF	360	10		34127
HPV18	L2	PVPSRSTTSFA	360	11		34128

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L2	QIGARVHF	312	8		34129
HPV18	L2	QIGARVHFY	312	9		34130
HPV18	L2	QIGARVHFYH	312	10		34131
HPV18	L2	QTGEVAGNVF	172	10		34132
HPV18	L2	QVSVANPEF	233	9		34133
HPV18	L2	RAARRKRA	5	8		34134
HPV18	L2	RASVTDLY	11	8		34135
HPV18	L2	RASVTDLYK	11	9		34136
HPV18	L2	RAYQQVSA	229	9		34137
HPV18	L2	RFSRLGQR	295	8		34138
HPV18	L2	RFSRLGQRA	295	9		34139
HPV18	L2	RGTVRFSR	291	8		34140
HPV18	L2	RLGQRATMF	298	9		34141
HPV18	L2	RLGQRATMFTF	298	11		34142
HPV18	L2	RLHRPALTSSR	281	10		34143
HPV18	L2	RLHRPALTSSR	281	11		34144
HPV18	L2	RSDVPDSD	268	9		34145
HPV18	L2	RSGTQIGA	308	8		34146
HPV18	L2	RSGTQIGAR	308	9		34147
HPV18	L2	RSGTQIGARVH	308	11		34148
HPV18	L2	RSTTSFAF	364	8		34149
HPV18	L2	RSTTSFAF	364	9		34150
HPV18	L2	RSTTSFAF	364	10		34151
HPV18	L2	RSTTSFAFFK	364	11		34152
HPV18	L2	RSTTSFAFFKY	364	11		34153
HPV18	L2	RTGYIPLGGR	68	10		34154
HPV18	L2	RVAGPRLY	220	8		34155
HPV18	L2	RVAGPRLYSR	220	10		34156
HPV18	L2	RVAGPRLYSRA	220	11		34157
HPV18	L2	RVYFFADGF	450	10		34158
HPV18	L2	SAGTTTTPA	132	8		34159
HPV18	L2	SATEDNDLF	340	9		34160
HPV18	L2	SDFMDIIR	274	8		34161
HPV18	L2	SDFMDIIRLII	274	10		34162
HPV18	L2	SDFMDIIRLHR	274	11		34163
HPV18	L2	SDVPDSD	269	8		34164
HPV18	L2	SGAPRPTF	115	8		34165
HPV18	L2	SGFDITSA	126	8		34166
HPV18	L2	SGTCPPDVVPK	24	11		34167
HPV18	L2	SGTGGRTGY	63	9		34168
HPV18	L2	SGTQIGAR	309	8		34169
HPV18	L2	SGTQIGARVH	309	10		34170
HPV18	L2	SGTQIGARVHF	309	11		34171
HPV18	L2	SISTTNFTNPA	151	11		34172
HPV18	L2	SLITYDNPA	247	9		34173
HPV18	L2	SLITYDNPAF	247	10		34174
HPV18	L2	SSLITYDNPA	246	10		34174

Seq. Id.
No.

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L2	SSLITYDNPAF	246	11		34175
HPV18	L2	SSTPLPTVR	211	9		34176
HPV18	L2	SSTPLPTVRR	211	10		34177
HPV18	L2	SSVVTSGA	110	8		34178
HPV18	L2	SSVVTSGAPR	110	10		34179
HPV18	L2	SSWDDVPVY	393	8		34180
HPV18	L2	STPLPTVR	212	8		34181
HPV18	L2	STPLPTVRR	212	9		34182
HPV18	L2	STPLPTVRRVA	212	11		34183
HPV18	L2	STQYIGIH	424	8		34184
HPV18	L2	STQYIGHGTH	424	11		34185
HPV18	L2	STSVSISTTNF	147	11		34186
HPV18	L2	STTNFTNPA	153	9		34187
HPV18	L2	STTNFTNPAF	153	10		34188
HPV18	L2	STTSFAFF	365	8		34189
HPV18	L2	STTSFAFFK	365	9		34190
HPV18	L2	STTSFAFFKY	365	10		34191
HPV18	L2	SVANPEFLTR	235	10		34192
HPV18	L2	SVSISTTNF	149	9		34193
HPV18	L2	SVTDLYKTC	13	10		34194
HPV18	L2	SVVTSGAPR	111	9		34195
HPV18	L2	SVWPIVSPTA	412	10		34196
HPV18	L2	TAPASTQY	420	8		34197
HPV18	L2	TCPPDVVPK	26	9		34198
HPV18	L2	TDLYKTC	15	8		34199
HPV18	L2	TFTGTSGF	121	8		34200
HPV18	L2	TGEVAGNVF	173	9		34201
HPV18	L2	TGSGTGGR	61	8		34202
HPV18	L2	TGSGTGGRTGY	61	11		34203
HPV18	L2	TGTSGFDITSA	123	11		34204
HPV18	L2	TGYIPLGGR	69	9		34205
HPV18	L2	TISSASSY	377	8		34206
HPV18	L2	TSAGITTPA	131	9		34207
HPV18	L2	TSFAFFKY	367	8		34208
HPV18	L2	TSGAPRPTF	114	9		34209
HPV18	L2	TSGFDITSA	125	9		34210
HPV18	L2	TSRRGTVR	288	8		34211
HPV18	L2	TSRRGTVRF	288	9		34212
HPV18	L2	TSRRGTVRFSR	288	11		34213
HPV18	L2	TSSWDDVPVY	392	9		34214
HPV18	L2	TSVSISTTNF	148	10		34215
HPV18	L2	TSVWPIVSPTA	411	11		34216
HPV18	L2	TTLTFDPR	261	8		34217
HPV18	L2	TTNFTNPA	154	8		34218
HPV18	L2	TTNFTNPAF	154	9		34219
HPV18	L2	TTSFAFFK	366	8		34220

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A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV18	L2	TTTSFAFFKY	366	9		34221
HPV18	L2	TVRFSLGQR	293	10		34222
HPV18	L2	TVRFSLGQRA	293	11		34223
HPV18	L2	TVRRVAGPR	217	9		34224
HPV18	L2	TVRRVAGPRLY	217	11		34225
HPV18	L2	TVVDVGPTTR	80	9		34226
HPV18	L2	VAGPRLYSR	221	9		34227
HPV18	L2	VAGPRLYSRA	221	10		34228
HPV18	L2	VAGPRLYSRAY	221	11		34229
HPV18	L2	VANPEFLTR	236	9		34230
HPV18	L2	VDITLTFDPR	259	10		34231
HPV18	L2	VFGTPTSNGTH	180	11		34232
HPV18	L2	VGTPTSNGTH	182	9		34233
HPV18	L2	VGTPTSNGTHY	182	11		34234
HPV18	L2	VSATEDNDLF	339	10		34235
HPV18	L2	VSHRAARR	2	8		34236
HPV18	L2	VSHRAARRK	2	9		34237
HPV18	L2	VSHRAARRKR	2	10		34238
HPV18	L2	VSHRAARRKKRA	2	11		34239
HPV18	L2	VSITTNF	150	8		34240
HPV18	L2	VSPTAPASTQY	417	11		34241
HPV18	L2	VSVANPEF	234	8		34242
HPV18	L2	VSVANPEFLTR	234	11		34243
HPV18	L2	VTDLKTKCK	14	9		34244
HPV18	L2	VTSAGPRPTF	113	10		34245
HPV18	L2	VVDVGPTTR	81	8		34246
HPV18	L2	VVPKVEGTTLA	31	11		34247
HPV18	L2	VVTSGAPR	112	8		34248
HPV18	L2	VVTSGAPRPTF	112	11		34249
HPV18	L2	YADDMDDPA	351	8		34250
HPV18	L2	YFFADGFVA	453	9		34251
HPV18	L2	YFFADGFVAA	453	10		34252
HPV18	L2	YFIPKKRK	442	8		34253
HPV18	L2	YFIPKKRKRR	442	9		34254
HPV18	L2	YIELQPLVSA	332	10		34255
HPV18	L2	YIGHGTH	427	8		34256
HPV18	L2	YIGHGTHY	427	9		34257
HPV18	L2	YIGHGTHY	427	10		34258
HPV18	L2	YLWPLYF	436	8		34259
HPV18	L2	YLWPLYFIPK	436	11		34260
HPV18	L2	YSPTISSA	374	8		34261
HPV18	L2	YSPTISSASSY	374	11		34262
HPV18	L2	YSRAYQQVSV	227	11		34263
HPV31	E1	AAALYWYR	296	8		34264
HPV31	E1	AAFVGTGTVA	219	10		34265
HPV31	E1	AAMLGKFK	185	8		34266

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	AAMLGKFKELY	185	11		34267
HPV31	E1	ACAFKLSNSQA	369	11		34268
HPV31	E1	ADAKIGMLDDA	494	11		34269
HPV31	E1	ADSDSNACA	363	9		34270
HPV31	E1	ADSDSNACAF	363	10		34271
HPV31	E1	AFGVGTGVA	220	9		34272
HPV31	E1	AFLKLSNSQA	371	9		34273
HPV31	E1	AFLKLSNSQAK	371	10		34274
HPV31	E1	AGKDDRWPY	550	9		34275
HPV31	E1	AGKDDRWPYLH	550	11		34276
HPV31	E1	AICIENNSK	111	9		34277
HPV31	E1	AICIENNSKTA	111	11		34278
HPV31	E1	ALFHAQEA	68	8		34279
HPV31	E1	ALFHAQEAEEH	68	11		34280
HPV31	E1	ALKLFLKGVPK	439	11		34281
HPV31	E1	AMLGKFKELY	186	10		34282
HPV31	E1	ATTPCWHY	504	8		34283
HPV31	E1	AVQVLKRK	81	8		34284
HPV31	E1	AVQVLKRY	81	9		34285
HPV31	E1	CAFLKLSNSQA	370	10		34286
HPV31	E1	CAFLKLSNSQAK	370	11		34287
HPV31	E1	CAKNRITIEK	263	10		34288
HPV31	E1	CDKVSDEGDWR	410	11		34289
HPV31	E1	CGTMCRIHY	385	8		34290
HPV31	E1	CGTMCRIHYK	385	9		34291
HPV31	E1	CGTMCRIHYKR	385	10		34292
HPV31	E1	CGTMCRIHYKRA	385	11		34293
HPV31	E1	CIENNSKTA	113	9		34294
HPV31	E1	CIENNSKTAK	113	10		34295
HPV31	E1	CIENNSKTAKR	113	11		34296
HPV31	E1	CIISYANSK	477	9		34297
HPV31	E1	CIISYANSKSH	477	11		34298
HPV31	E1	CLYCHILQSLA	239	10		34299
HPV31	E1	CMLIQPPK	284	8		34300
HPV31	E1	CMLIQPPKLR	284	10		34301
HPV31	E1	CTDWCVA	213	8		34302
HPV31	E1	CTDWCVAAF	213	9		34303
HPV31	E1	CVDYNISPR	100	9		34304
HPV31	E1	CVDYNISPRLK	100	11		34305
HPV31	E1	CVSGQNIR	620	8		34306
HPV31	E1	DAKIGMLDDA	495	10		34307
HPV31	E1	DATTPCWH	503	8		34308
HPV31	E1	DATTPCWHY	503	9		34309
HPV31	E1	DCGTMCRII	384	8		34310
HPV31	E1	DCGTMCRIHY	384	9		34311
HPV31	E1	DCGTMCRIHYK	384	10		34312

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	DCGTMCRHYKR	384	11		34313
HPV31	E1	DDATTPCWH	502	9		34314
HPV31	E1	DDATTPCWHY	502	10		34315
HPV31	E1	DDRWPYLH	553	8		34316
HPV31	E1	DDRWPYLHSR	553	10		34317
HPV31	E1	DDSEIAYK	351	8		34318
HPV31	E1	DDSEIAYKY	351	9		34319
HPV31	E1	DDSEIAYKYA	351	10		34320
HPV31	E1	DFIDNCNVY	49	9		34321
HPV31	E1	DGDSFSTF	611	8		34322
HPV31	E1	DGDSFSTFK	611	9		34323
HPV31	E1	DGEGTGCNGWF	8	11		34324
HPV31	E1	DGNPVSIDVK	521	10		34325
HPV31	E1	DGNPVSIDVKH	521	11		34326
HPV31	E1	DISSCVDY	96	8		34327
HPV31	E1	DIVKFLRY	421	8		34328
HPV31	E1	DLSQMVAQWA	336	9		34329
HPV31	E1	DLSQMVAQWAY	336	10		34330
HPV31	E1	DSDSNACA	364	8		34331
HPV31	E1	DSDSNACAF	364	9		34332
HPV31	E1	DSDSNACAFK	364	11		34333
HPV31	E1	DSEIAYKY	352	8		34334
HPV31	E1	DSEIAYKYA	352	9		34335
HPV31	E1	DSNACAFK	366	9		34336
HPV31	E1	DTGEDMVDY	42	9		34337
HPV31	E1	DVKHKALMQLK	528	11		34338
HPV31	E1	DVMDDEIA	348	9		34339
HPV31	E1	DVMDDEIAY	348	10		34340
HPV31	E1	DVMDDEIAYK	348	11		34341
HPV31	E1	EAEHAE	74	8		34342
HPV31	E1	EAEQAQALF	62	9		34343
HPV31	E1	EAEQAQALFH	62	10		34344
HPV31	E1	EAEQAQALFHA	62	11		34345
HPV31	E1	EAVQVLKR	80	8		34346
HPV31	E1	EAVQVLKRK	80	9		34347
HPV31	E1	EAVQVLKRKY	80	10		34348
HPV31	E1	EDKENDGDSF	606	10		34349
HPV31	E1	EFVSFLSA	432	8		34350
HPV31	E1	EFVSFLSALK	432	10		34351
HPV31	E1	EGDWRDIVK	416	9		34352
HPV31	E1	EGDWRDIVKF	416	10		34353
HPV31	E1	EGFKTLQPY	229	10		34354
HPV31	E1	EGTGCNGWF	10	9	0.0008	34355
HPV31	E1	EGTGCNGWFF	10	10	0.0005	34356
HPV31	E1	EIAYKYAQLA	354	10		34357
HPV31	E1	ELIRPFQSNK	201	10		34358

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	ELSDKNWK	583	8		34359
HPV31	E1	ELSDKNWKSFF	583	10		34360
HPV31	E1	ELSDKNWKSFF	583	11		34361
HPV31	E1	ETAQALFH	64	8		34362
HPV31	E1	ETAQALFHIA	64	9		34363
HPV31	E1	ETPEWIER	315	8		34364
HPV31	E1	FDKNGNPVY	574	9		34365
HPV31	E1	FDSLQMVQWA	335	10		34366
HPV31	E1	FDSLQMVQWAY	335	11		34367
HPV31	E1	FFSRTWCR	592	8		34368
HPV31	E1	FGMSLISF	466	8		34369
HPV31	E1	FGVTGTVA	221	8		34370
HPV31	E1	FGVTGTVAEGF	221	11		34371
HPV31	E1	FIDNCNVY	50	8		34372
HPV31	E1	FLKGVPKK	443	8		34373
HPV31	E1	FLKNSQA	372	8		34374
HPV31	E1	FLKNSQAK	372	9	0.0013	34375
HPV31	E1	FLQGCIISY	473	9		34376
HPV31	E1	FLQGCIISYA	473	10		34377
HPV31	E1	FLRYQQIEF	425	9		34378
HPV31	E1	FLSALKLF	436	8		34379
HPV31	E1	FLSALKFLK	436	10		34380
HPV31	E1	FMELIRPF	199	8		34381
HPV31	E1	FSKRWCRNLH	593	11		34382
HPV31	E1	FTFPNPF	566	9	0.0008	34383
HPV31	E1	FTFPNPF	566	11		34384
HPV31	E1	FVSFLSALK	433	9		34385
HPV31	E1	FVSFLSALKLF	433	11		34386
HPV31	E1	GAPNTGKSY	457	9		34387
HPV31	E1	GAPNTGKSYF	457	10		34388
HPV31	E1	GCIISYANSK	476	10		34389
HPV31	E1	GCNGWFYVEA	13	10		34390
HPV31	E1	GDSFSTFK	612	8		34391
HPV31	E1	GDWRDIVK	417	8		34392
HPV31	E1	GDWRDIVKF	417	9		34393
HPV31	E1	GDWRDIVKFLR	417	11		34394
HPV31	E1	GFKTLQPY	230	9		34395
HPV31	E1	GMSNISDVY	305	9		34396
HPV31	E1	GMVMLMLVR	252	9		34397
HPV31	E1	GMVMLMLVRF	252	10		34398
HPV31	E1	GMVMLMLVRFK	252	11		34399
HPV31	E1	GSDGTHSER	157	9		34400
HPV31	E1	GTGCNGWF	11	8		34401
HPV31	E1	GTGCNGWFY	11	9	0.0004	34402
HPV31	E1	GTMCRHYK	386	8		34403
HPV31	E1	GTMCRHYKR	386	9		34404

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	GTMCRHYKRA	386	10		34405
HPV31	E1	GTVAEGFK	225	8		34406
HPV31	E1	GVPKKNCILIH	446	11		34407
HPV31	E1	GVSEMLIR	196	9		34408
HPV31	E1	GVSEMLIRPF	196	11		34409
HPV31	E1	GVTGTVAEGF	222	10		34410
HPV31	E1	GVTGTVAEGFK	222	11		34411
HPV31	E1	HAEAVQVLK	78	9		34412
HPV31	E1	HAEAVQVLKR	78	10		34413
HPV31	E1	HAEAVQVLKRK	78	11		34414
HPV31	E1	HAQAEHH	71	8		34415
HPV31	E1	HAQAEHH	71	9		34416
HPV31	E1	HAQAEHHA	71	11		34417
HPV31	E1	HAQAEHHA	71	8		34418
HPV31	E1	HFWLQPLA	487	10		34419
HPV31	E1	HFWLQPLADA	487	11		34420
HPV31	E1	HFWLQPLADAK	487	11		34421
HPV31	E1	HGAPNTGK	456	8		34422
HPV31	E1	HGAPNTGKSY	456	10		34423
HPV31	E1	HGAPNTGKSYF	456	11		34424
HPV31	E1	HSENEPTPR	162	11		34425
HPV31	E1	HSFNDITF	328	8		34426
HPV31	E1	HSRLVVFTF	560	9		34427
HPV31	E1	IAYKYAQLA	355	9		34428
HPV31	E1	ICIENNSK	112	8		34429
HPV31	E1	ICIENNSKTA	112	10		34430
HPV31	E1	ICIENNSKTAK	112	11		34431
HPV31	E1	IDNCNVNNOA	51	11		34432
HPV31	E1	IDNYLRNA	512	8		34433
HPV31	E1	IISYANSK	478	8		34434
HPV31	E1	IISYANSKSH	478	10		34435
HPV31	E1	IISYANSKSHF	478	11		34436
HPV31	E1	LIHGAPNTGK	453	11		34437
HPV31	E1	ILQVLKTSNGK	174	11		34438
HPV31	E1	ISFLQGCIISY	471	11		34439
HPV31	E1	ISYANSKSH	479	9		34440
HPV31	E1	ISYANSKSHF	479	10		34441
HPV31	E1	ITIEKLEK	268	9		34442
HPV31	E1	ITSNINAGK	544	9		34443
HPV31	E1	IVKDCGTMCR	381	10		34444
HPV31	E1	IVKDCGTMCRH	381	11		34445
HPV31	E1	KAAMLGKFK	184	8		34446
HPV31	E1	KAAMLGKFK	184	9		34447
HPV31	E1	KAICIENNSK	110	10		34448
HPV31	E1	KCAKNRITIEK	262	11		34449
HPV31	E1	KCVSGQNIR	619	9		34450
HPV31	E1	KDCGTMCR	383	8		

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	KDCGTMCRH	383	9		34451
HPV31	E1	KDCGTMCRHY	383	10		34452
HPV31	E1	KDCGTMCRHYK	383	11		34453
HPV31	E1	KDDRWPYLH	552	9		34454
HPV31	E1	KDDRWPYLHSR	552	11		34455
HPV31	E1	KFKELYGVSF	190	10		34456
HPV31	E1	KFLRYQQIEF	424	10		34457
HPV31	E1	KIGMLDDA	497	8		34458
HPV31	E1	KIVKDCGTMCR	380	11		34459
HPV31	E1	KLFLKGVPK	441	9		34460
HPV31	E1	KLFLKGVPKK	441	10		34461
HPV31	E1	KLRSTAAA	291	8		34462
HPV31	E1	KLRSTAAALY	291	10		34463
HPV31	E1	KSFFSRITWCR	590	10		34464
HPV31	E1	KSHFWLQPLA	485	10		34465
HPV31	E1	KSNSQAKIVK	374	10		34466
HPV31	E1	KSTCTDWCVA	210	10		34467
HPV31	E1	KSTCTDWCVA	210	11		34468
HPV31	E1	KSYFGMSLISF	463	11		34469
HPV31	E1	KTAKRRRLF	119	8		34470
HPV31	E1	KTLQPYCLY	232	10		34471
HPV31	E1	KTSNGKAA	179	8		34472
HPV31	E1	KVSDGEGDWR	412	9		34473
HPV31	E1	LADSDNA	362	8		34474
HPV31	E1	LADSDSNACA	362	10		34475
HPV31	E1	LADSDSNACAF	362	11		34476
HPV31	E1	LDDATTPCWH	501	10		34477
HPV31	E1	LDDATTPCWHY	501	11		34478
HPV31	E1	LDGNPVSIDVK	520	11		34479
HPV31	E1	LFELPDSGY	125	9		34480
HPV31	E1	LFHAQEAEEH	69	10		34481
HPV31	E1	LFHAQEAEEHA	69	11		34482
HPV31	E1	LFLKGVPK	442	8		34483
HPV31	E1	LFLKGVPKK	442	9		34484
HPV31	E1	LGFKELEY	188	8		34485
HPV31	E1	LIHGAPNTGK	454	10		34486
HPV31	E1	LIQPKLR	286	8		34487
HPV31	E1	LIQPKLRSTA	286	11		34488
HPV31	E1	LIRPQSNK	202	9		34489
HPV31	E1	LITSNINA	543	8		34490
HPV31	E1	LITSNINAGK	543	10		34491
HPV31	E1	LLITSNINA	542	9		34492
HPV31	E1	LLITSNINAGK	542	11		34493
HPV31	E1	LLQPYCLY	234	8		34494
HPV31	E1	LLQPYCLYCH	234	10		34495
HPV31	E1	LMLVRFKCA	256	9		34496

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id No.
HPV31	E1	LMLVRFKCAK	256	10		34497
HPV31	E1	LSALKLFLK	437	9		34498
HPV31	E1	LSCNGSDGTH	153	10		34499
HPV31	E1	LSDISSCVDY	94	10		34500
HPV31	E1	LSDKNWKSF	584	9		34501
HPV31	E1	LSDKNWKSPF	584	10		34502
HPV31	E1	LSQMVMQWA	337	8		34503
HPV31	E1	LSQMVMQWAY	337	9		34504
HPV31	E1	LVRFKCAK	258	8		34505
HPV31	E1	LVRFKCAKNR	258	10		34506
HPV31	E1	LVVFTFPNPF	563	10		34507
HPV31	E1	MCRHYKRA	388	8		34508
HPV31	E1	MCRHYKRAEK	388	10		34509
HPV31	E1	MCRHYKRAEKR	388	11		34510
HPV31	E1	MDDSEIAY	350	8		34511
HPV31	E1	MDDSEIAYK	350	9		34512
HPV31	E1	MDDSEIAYKY	350	10		34513
HPV31	E1	MDDSEIAYKYA	350	11		34514
HPV31	E1	MGQWIKSR	402	8		34515
HPV31	E1	MGQWIKSRCDK	402	11		34516
HPV31	E1	MLDDATTPCWH	500	11		34517
HPV31	E1	MLGKFKELY	187	9		34518
HPV31	E1	MLIQPPKLR	285	9	0.0005	34519
HPV31	E1	MLMLVRFK	255	8		34520
HPV31	E1	MLMLVRFKCA	255	10		34521
HPV31	E1	MLMLVRFKCAK	255	11		34522
HPV31	E1	MLVRFKCA	257	8		34523
HPV31	E1	MLVRFKCAK	257	9		34524
HPV31	E1	MLVRFKCAKNR	257	11		34525
HPV31	E1	MSMGQWIK	400	8		34526
HPV31	E1	MSMGQWIKSR	400	10		34527
HPV31	E1	MSNISDVY	306	8		34528
HPV31	E1	MVDFIDNCNVY	47	11		34529
HPV31	E1	MVMLMLVR	253	8		34530
HPV31	E1	MVMLMLVRF	253	9		34531
HPV31	E1	MVMLMLVRFK	253	10		34532
HPV31	E1	NAGKDDRWPY	549	10		34533
HPV31	E1	NCILIHGA	451	8		34534
HPV31	E1	NCMLIQPPK	283	9		34535
HPV31	E1	NCMLIQPPKLR	283	11		34536
HPV31	E1	NCNVYNNQA	53	9		34537
HPV31	E1	NCNVYNNQAEA	53	11		34538
HPV31	E1	NDGDSFSTF	610	9		34539
HPV31	E1	NDGDSFSTFK	610	10		34540
HPV31	E1	NDVMDDSEIA	347	10		34541
HPV31	E1	NDVMDDSEIAY	347	11		34542

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	NGKAAMLGK	182	9		34543
HPV31	E1	NGKAAMLGKF	182	10		34544
HPV31	E1	NGKAAMLGKFK	182	11		34545
HPV31	E1	NGNPVVELSDK	577	11		34546
HPV31	E1	NGSDGTHSER	156	10		34547
HPV31	E1	NGWFYVEA	15	8		34548
HPV31	E1	NINAGKDDR	547	9		34549
HPV31	E1	NISPLKA	104	8		34550
HPV31	E1	NLIIEEDK	601	8		34551
HPV31	E1	NSKTAKRR	117	8		34552
HPV31	E1	NSKTAKRRLF	117	10		34553
HPV31	E1	NSQAKIVK	376	8		34554
HPV31	E1	NVYNNQAEA	55	9		34555
HPV31	E1	PCWHYIDNY	507	9		34556
HPV31	E1	PCWHYIDNYLR	507	11		34557
HPV31	E1	PFDKNGNPVY	573	10		34558
HPV31	E1	PLLTNSNA	541	10		34559
HPV31	E1	PLSDISSCVDY	93	11		34560
HPV31	E1	PTRNILQVLK	*170	10		34561
HPV31	E1	PVSIDVKH	524	8		34562
HPV31	E1	PVSIDVKHK	524	9		34563
HPV31	E1	PVSIDVKHKA	524	10		34564
HPV31	E1	PVVELSDK	580	8		34565
HPV31	E1	PVVELSDKNWK	580	11		34566
HPV31	E1	QAEAEATAQA	60	9		34567
HPV31	E1	QAEAEATAQALF	60	11		34568
HPV31	E1	QALFIAQEA	67	9		34569
HPV31	E1	QGCIISYA	475	8		34570
HPV31	E1	QGCIISYANSK	475	11		34571
HPV31	E1	QIEFVSFLSA	430	10		34572
HPV31	E1	QLADSDNA	361	9		34573
HPV31	E1	QLADSDSNACA	361	11		34574
HPV31	E1	QMSMGQWIK	399	9		34575
HPV31	E1	QMSMGQWIKSR	399	11		34576
HPV31	E1	QTVLQHSF	323	8		34577
HPV31	E1	QVLKTSNGK	176	9		34578
HPV31	E1	QVLKTSNGKA	176	10		34579
HPV31	E1	QVLKTSNGKAA	176	11		34580
HPV31	E1	RDIVKFLR	420	8		34581
HPV31	E1	RDIVKFLRY	420	9		34582
HPV31	E1	RFKCAKNR	260	8		34583
HPV31	E1	RITIEKLLEK	267	10		34584
HPV31	E1	RLFELPDSGY	124	10		34585
HPV31	E1	RLNLHEEDK	599	10		34586
HPV31	E1	RLVVFTHPNPF	562	11		34587
HPV31	E1	RSTAAALY	293	8		34588

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	RSTAAALYWY	293	10		34589
HPV31	E1	RSTAAALYWYR	293	11		34590
HPV31	E1	RTGMSNISDVY	303	11		34591
HPV31	E1	RTWRLNLH	595	9		34592
HPV31	E1	SALKFLK	438	8		34593
HPV31	E1	SCNGSDGTH	154	9		34594
HPV31	E1	SCVDYNISPR	99	10		34595
HPV31	E1	SDEGDWRDIVK	414	11		34596
HPV31	E1	SDGTHSER	158	8		34597
HPV31	E1	SDISSCVDY	95	9		34598
HPV31	E1	SDKNWKSF	585	8		34599
HPV31	E1	SDKNWKSFF	585	9		34600
HPV31	E1	SDKNWKSFFSR	585	11		34601
HPV31	E1	SDSNACAF	365	8		34602
HPV31	E1	SDSNACAFK	365	10		34603
HPV31	E1	SDTGEDMVD	41	10		34604
HPV31	E1	SFSRTWCR	591	9		34605
HPV31	E1	SFLQGCISY	472	10		34606
HPV31	E1	SFLQGCISYA	472	11		34607
HPV31	E1	SFLSALKLF	435	9		34608
HPV31	E1	SFLSALKLFLK	435	11		34609
HPV31	E1	SFMEIRPF	198	9		34610
HPV31	E1	SIDVKHKA	526	8		34611
HPV31	E1	SMGQWIKSR	401	9		34612
HPV31	E1	SSCVDYNISPR	98	11		34613
HPV31	E1	SSDTGEDMVD	40	11		34614
HPV31	E1	STAAALYWY	294	9		34615
HPV31	E1	STAAALYWYR	294	10		34616
HPV31	E1	STCTDWCVA	211	9		34617
HPV31	E1	STCTDWCVA	211	10		34618
HPV31	E1	STCTDWCVA	211	11		34619
HPV31	E1	STCTDWCVA	211	11		34620
HPV31	E1	STNCMLIQPK	281	11		34621
HPV31	E1	TAAALYWY	295	8		34622
HPV31	E1	TAAALYWYR	295	9		34623
HPV31	E1	TAQALFHA	65	8		34624
HPV31	E1	TAQALFHAQEA	65	11		34625
HPV31	E1	TCTDWCVA	212	8		34626
HPV31	E1	TCTDWCVA	212	9		34627
HPV31	E1	TCTDWCVA	212	10		34628
HPV31	E1	TCTDWCVA	212	10		34629
HPV31	E1	TFDLQMVQWA	334	11		34630
HPV31	E1	TFKCVSGQNR	617	11		34631
HPV31	E1	TFNPFPP	567	8		34632
HPV31	E1	TFNPFPPDK	567	10		34633
HPV31	E1	TGCNGWFY	12	8		34634
HPV31	E1	TGCNGWFYVEA	12	11		34635

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	TGEDMVDV	43	8		34635
HPV31	E1	TGMSISDVY	304	10		34636
HPV31	E1	TGTVAEGF	224	8		34637
HPV31	E1	TGTVAEGFK	224	9		34638
HPV31	E1	TIEKLLEK	269	8		34639
HPV31	E1	TLLQPYCLY	233	9		34640
HPV31	E1	TLLQPYCLYCH	233	11		34641
HPV31	E1	TLSGNSDGTG	152	11		34642
HPV31	E1	TMCRIYKR	387	8		34643
HPV31	E1	TMCRIYKRA	387	9		34644
HPV31	E1	TMCRIYKRAEK	387	11		34645
HPV31	E1	TSNGKAAMLGK	180	11		34646
HPV31	E1	TSNINAGK	545	8		34647
HPV31	E1	TSNINAGKDDR	545	11		34648
HPV31	E1	TTPCWHYIDNY	505	11		34649
HPV31	E1	VAAFGVTGTVA	218	11		34650
HPV31	E1	VDFIDNCNVY	48	10		34651
HPV31	E1	VDYNISPR	101	8		34652
HPV31	E1	VDYNISPRLK	101	10		34653
HPV31	E1	VDYNISPRLKA	101	11		34654
HPV31	E1	VFTFPNPF	565	8		34655
HPV31	E1	VFTFPNPF	565	10		34656
HPV31	E1	VLKTSNGK	177	8		34657
HPV31	E1	VLKTSNGKA	177	9		34658
HPV31	E1	VLKTSNGKAA	177	10		34659
HPV31	E1	VLQHSFNDTTF	325	11		34660
HPV31	E1	VMDDSEIA	349	8		34661
HPV31	E1	VMDDSEIAY	349	9		34662
HPV31	E1	VMDDSEIAYK	349	10		34663
HPV31	E1	VMDDSEIAYKY	349	11		34664
HPV31	E1	VMLMLVRF	254	8		34665
HPV31	E1	VMLMLVRFK	254	9		34666
HPV31	E1	VMLMLVRFKCA	254	11		34667
HPV31	E1	VSDEGDWR	413	8		34668
HPV31	E1	VSFLSALK	434	8		34669
HPV31	E1	VSFLSALKLF	434	10		34670
HPV31	E1	VSFMEILR	197	8		34671
HPV31	E1	VSFMEILRPF	197	10		34672
HPV31	E1	VSIDVKHK	525	8		34673
HPV31	E1	VSIDVKHKA	525	9		34674
HPV31	E1	VTGTVAEGF	223	9		34675
HPV31	E1	VTGTVAEGFK	223	10		34676
HPV31	E1	VVFTFPNPF	564	9		34677
HPV31	E1	VVFTFPNPF	564	11		34678
HPV31	E1	WFYVEAVIDR	17	10		34679
HPV31	E1	WGMVMLMLVR	251	10		34680

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E1	WGMVMLMLVRF	251	11		34681
HPV31	E1	WIERQTVLQH	319	10		34682
HPV31	E1	WIKSRCDK	405	8		34683
HPV31	E1	WLQPLADA	489	8		34684
HPV31	E1	WLQPLADAK	489	9		34685
HPV31	E1	YANSKSHF	481	8	0.0005	34686
HPV31	E1	YAQLADSDSNA	359	11		34687
HPV31	E1	YCHLQSLA	241	8		34688
HPV31	E1	YCLYCHLQSLA	238	11		34689
HPV31	E1	YFGMSLSIF	465	9		34690
HPV31	E1	YGETPEWIER	313	10		34691
HPV31	E1	YGVSEFELIR	195	10		34692
HPV31	E1	YIDNYLRNA	511	9		34693
HPV31	E1	YLHSRLVVF	558	9		34694
HPV31	E1	YLHSRLVVFTF	558	11		34695
HPV31	E1	YVEAVIDR	19	8		34696
HPV31	E1	AAACTNQTR	277	9		34697
HPV31	E2	AAACTNQTRA	277	10		34698
HPV31	E2	AACTNQTR	278	8		34699
HPV31	E2	AACTNQTRA	278	9		34700
HPV31	E2	ACTNQTRA	279	8		34701
HPV31	E2	AGQVIVF	188	8		34702
HPV31	E2	AGIVTKLPTA	208	10		34703
HPV31	E2	ALGTSEGVR	229	9		34704
HPV31	E2	ALGTSEGVRR	229	10		34705
HPV31	E2	ALGTSEGVRR	229	11		34706
HPV31	E2	ALSVSKAK	61	8		34707
HPV31	E2	ALSVSKAKA	61	9		34708
HPV31	E2	ATTPIHLK	291	9		34709
HPV31	E2	ATTSTKRPR	239	9		34710
HPV31	E2	CALGTSEGVR	228	10		34711
HPV31	E2	CALGTSEGVRR	228	11		34712
HPV31	E2	CDHIDYWK	27	8		34713
HPV31	E2	CDHIDYWKH	27	9		34714
HPV31	E2	CDHIDYWKHIR	27	11		34715
HPV31	E2	CGVISAAA	272	8		34716
HPV31	E2	CLRYRLSK	307	8		34717
HPV31	E2	CLRYRLSKY	307	9		34718
HPV31	E2	CLRYRLSKYK	307	10		34719
HPV31	E2	CTDGKHKNA	330	9		34720
HPV31	E2	CTVVEGQVNCK	145	11		34721
HPV31	E2	CVLMYKAR	40	8		34722
HPV31	E2	DANILKCLR	301	9		34723
HPV31	E2	DANILKCLRY	301	10		34724
HPV31	E2	DANILKCLRYR	301	11		34725
HPV31	E2	DDFLNTVK	351	8		34726

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E2	DGDVHNTMH	122	9		34727
HPV31	E2	DGDVHNTMHY	122	10		34728
HPV31	E2	DSKRLCDH	22	8		34729
HPV31	E2	DSKRLCDHIDY	22	11		34730
HPV31	E2	DSVNCGVISA	268	10		34731
HPV31	E2	DSVNCGVISAA	268	11		34732
HPV31	E2	DVHNTMHY	124	8		34733
HPV31	E2	EAKKYGTGK	174	9		34734
HPV31	E2	EAKKYGTGKK	174	10		34735
HPV31	E2	ECVLMYKA	39	8		34736
HPV31	E2	ECVLMYKAR	39	9		34737
HPV31	E2	EGHITYFVNF	162	10		34738
HPV31	E2	EGQVNCCKGIY	149	10		34739
HPV31	E2	EGQVNCCKGIYY	149	11		34740
HPV31	E2	EGVRRATTSTK	234	11		34741
HPV31	E2	EISFAGIVTK	204	10		34742
HPV31	E2	EMGHSINH	48	9		34743
HPV31	E2	ESVFSSEISF	197	11		34744
HPV31	E2	ETLNNTEY	80	8		34745
HPV31	E2	ETLNNTEYK	80	9		34746
HPV31	E2	EVHAGGQVIVF	185	11		34747
HPV31	E2	EVQFDGDVII	118	9		34748
HPV31	E2	FAGIVTKLPTA	207	11		34749
HPV31	E2	FDGDVHNTMH	121	10		34750
HPV31	E2	FDGDVHNTMHY	121	11		34751
HPV31	E2	FSSDEISF	200	8		34752
HPV31	E2	FSSDEISFA	200	9		34753
HPV31	E2	FTEEAKKY	171	8		34754
HPV31	E2	FVNFTEEA	168	8		34755
HPV31	E2	FVNFTEEAK	168	9		34756
HPV31	E2	FVNFTEEAKK	168	10		34757
HPV31	E2	FVNFTEEAKKY	168	11		34758
HPV31	E2	GCLKKHGY	108	8		34759
HPV31	E2	GDANILKCLR	300	10		34760
HPV31	E2	GDANILKCLRY	300	11		34761
HPV31	E2	GDVHNTMH	123	8		34762
HPV31	E2	GDVHNTMHY	123	9		34763
HPV31	E2	GIVTKLPTA	209	9		34764
HPV31	E2	GIYYVIIIEGI	156	9		34765
HPV31	E2	GTGKKWEVH	179	9		34766
HPV31	E2	GTGKKWEVHA	179	10		34767
HPV31	E2	GTSEGVRR	231	8		34768
HPV31	E2	GTSEGVRRR	231	9		34769
HPV31	E2	GVRATTSTK	235	10		34770
HPV31	E2	GVRATTSTKR	235	11		34771
HPV31	E2	IIAGGQVIVF	187	9		34772

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E2	HGYTVEVQF	113	9		34773
HPV31	E2	HIDYWKHIR	29	9		34774
HPV31	E2	HIRLECVLMY	35	10		34775
HPV31	E2	HIRLECVLMYK	35	11		34776
HPV31	E2	HITYFVNF	164	8		34777
HPV31	E2	HLKGDANILK	297	10		34778
HPV31	E2	HSNIHQVVP	52	10		34779
HPV31	E2	IDYWKHIR	30	8		34780
HPV31	E2	IIHLKGDA	295	8		34781
HPV31	E2	ILEHYENDSK	15	10		34782
HPV31	E2	ILEHYENDSKR	15	11		34783
HPV31	E2	ILKCLRYR	304	8		34784
HPV31	E2	ILKCLRYRLSK	304	11		34785
HPV31	E2	ISAAACTNQTR	275	11		34786
HPV31	E2	ISFAGIVTK	205	9		34787
HPV31	E2	ISTSQRDDF	345	9		34788
HPV31	E2	ITYFVNFTEEA	165	11		34789
HPV31	E2	IVFPESVF	193	8		34790
HPV31	E2	IVTKLPTA	210	8		34791
HPV31	E2	KAREMGH	45	8		34792
HPV31	E2	KCLRYRLSK	306	9		34793
HPV31	E2	KCLRYRLSKY	306	10		34794
HPV31	E2	KCLRYRLSKYK	306	11		34795
HPV31	E2	KGDANILK	299	8		34796
HPV31	E2	KGDANILKCLR	299	11		34797
HPV31	E2	KGIYVYIIIEGH	155	10		34798
HPV31	E2	KILEHYENDSK	14	11		34799
HPV31	E2	LCDHIDYWK	26	9		34800
HPV31	E2	LCDHIDYWKH	26	10		34801
HPV31	E2	LGTSEGVRR	230	8		34802
HPV31	E2	LGTSEGVRR	230	9		34803
HPV31	E2	LGTSEGVRR	230	10		34804
HPV31	E2	LMYKAREMGH	42	11		34805
HPV31	E2	LSKYKQLY	312	8		34806
HPV31	E2	LSQRLNVCQDK	4	11		34807
HPV31	E2	LSVSKAKA	62	8		34808
HPV31	E2	LSVSKAKALQA	62	11		34809
HPV31	E2	LTAPTGLK	103	9		34810
HPV31	E2	LTAPTGLKK	103	10		34811
HPV31	E2	LTAPTGLKKH	103	11		34812
HPV31	E2	LTVISTQR	342	9		34813
HPV31	E2	MGHSINII	49	8		34814
HPV31	E2	MLETLNNTTEY	78	10		34815
HPV31	E2	MLETLNNTTEYK	78	11		34816
HPV31	E2	MMLETLNNTTEY	77	11		34817
HPV31	E2	NAIVTLTY	337	8		34818

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E2	NCGVISAA	271	8		34819
HPV31	E2	NCGVISAAA	271	9		34820
HPV31	E2	NCKGIYVVI	153	9		34821
HPV31	E2	NDSKRLCDH	21	9		34822
HPV31	E2	NFTTEAKK	170	8		34823
HPV31	E2	NFTTEAKKY	170	9		34824
HPV31	E2	NILKCLRY	303	8		34825
HPV31	E2	NILKCLRYR	303	9		34826
HPV31	E2	NTHHPNKLRL	254	10		34827
HPV31	E2	NTMHYTNWK	127	9		34828
HPV31	E2	NTMHYTNWKF	127	10		34829
HPV31	E2	NTTTSNSK	219	8		34830
HPV31	E2	NTTTSNSKTCA	219	11		34831
HPV31	E2	NTSVSVSTGY	361	9		34832
HPV31	E2	NVCQDKILEH	9	10		34833
HPV31	E2	NVCQDKILEHY	9	11		34834
HPV31	E2	PALSVSKA	60	8		34835
HPV31	E2	PALSVSKAK	60	9		34836
HPV31	E2	PALSVSKAKA	60	10		34837
HPV31	E2	PATTPHH	290	8		34838
HPV31	E2	PATTPHHLK	290	10		34839
HPV31	E2	PIHLKGDA	294	9		34840
HPV31	E2	PTGCLKKH	106	8		34841
HPV31	E2	PTGCLKKHGY	106	10		34842
HPV31	E2	QDKILEHY	12	8		34843
HPV31	E2	QFDGDVHNTMH	120	11		34844
HPV31	E2	QLYEQVSTWH	317	11		34845
HPV31	E2	QTRAVSCPA	283	9		34846
HPV31	E2	QTSLELYLTA	96	10		34847
HPV31	E2	QVIVFPESVF	191	10		34848
HPV31	E2	QVNCCKGIY	151	8		34849
HPV31	E2	QVNCCKGIYV	151	9		34850
HPV31	E2	QVNCCKGIYVH	151	11		34851
HPV31	E2	QVVPALSVSK	57	10		34852
HPV31	E2	QVVPALSVSKA	57	11		34853
HPV31	E2	RATTSTKR	238	8		34854
HPV31	E2	RATTSTKRPR	238	10		34855
HPV31	E2	RDDFLNTVK	350	9		34856
HPV31	E2	RLCDHIDY	25	8		34857
HPV31	E2	RLCDHIDYWK	25	10		34858
HPV31	E2	RLCDHIDYWKII	25	11		34859
HPV31	E2	RLECVMY	37	8		34860
HPV31	E2	RLECVMYK	37	9		34861
HPV31	E2	RLECVMYKA	37	10		34862
HPV31	E2	RLECVMYKAR	37	11		34863
HPV31	E2	RLNVCQDK	7	8		34864

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E2	RLSKYKQLY	311	9		34865
HPV31	E2	RTEPEHRNTH	247	10		34866
HPV31	E2	RTEPEHRNTHH	247	11		34867
HPV31	E2	SAAACTNQTR	276	10		34868
HPV31	E2	SAAACTNQTRA	276	11		34869
HPV31	E2	SCPATTPIIH	288	10		34870
HPV31	E2	SFAGIVTK	206	8		34871
HPV31	E2	SINHQVVPA	53	9		34872
HPV31	E2	SLELYLTA	98	8		34873
HPV31	E2	SSDEISFA	201	8		34874
HPV31	E2	STKRPRTEPEH	242	11		34875
HPV31	E2	STQRDDF	346	8		34876
HPV31	E2	STWHWTCTDGK	324	11		34877
HPV31	E2	SVFSSDEISF	198	10		34878
HPV31	E2	SVFSSDEISFA	198	11		34879
HPV31	E2	SVNCGVISA	269	9		34880
HPV31	E2	SVNCGVISAA	269	10		34881
HPV31	E2	SVNCGVISAAA	269	11		34882
HPV31	E2	SVSKAKALQA	' 63	10		34883
HPV31	E2	TANNTTTSNSK	216	11		34884
HPV31	E2	TAPTGLCK	104	8		34885
HPV31	E2	TAPTGLCKK	104	9		34886
HPV31	E2	TAPTGLCKKH	104	10		34887
HPV31	E2	TCALGTSEGR	227	11		34888
HPV31	E2	TCTDGKHK	329	8		34889
HPV31	E2	TCTDGKHKNA	329	10		34890
HPV31	E2	TDGKHNA	331	8		34891
HPV31	E2	TGCLKKHGY	107	9		34892
HPV31	E2	TGKKWEVH	180	8		34893
HPV31	E2	TGKKWEVHA	180	9		34894
HPV31	E2	TLNNTYK	81	8		34895
HPV31	E2	TLTYISTSQR	341	10		34896
HPV31	E2	TMHYTNWK	128	8		34897
HPV31	E2	TMHYTNWKF	128	9		34898
HPV31	E2	TMHYTNWKFY	128	11		34899
HPV31	E2	TMQTSLELY	93	10		34900
HPV31	E2	TSEGVRR	232	8		34901
HPV31	E2	TSLELYLTA	97	9		34902
HPV31	E2	TSNSKTCA	222	8		34903
HPV31	E2	TPPIHLK	292	8		34904
HPV31	E2	TPPIHLKGDA	292	11		34905
HPV31	E2	TTNSKTCA	221	9		34906
HPV31	E2	TTSTKRPR	240	8		34907
HPV31	E2	TTTSNSKTCA	220	10		34908
HPV31	E2	TVEVQFDGDVH	116	11		34909
HPV31	E2	TVSVSTGY	362	8		34910

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E2	TVVEGQVNCK	146	10		34911
HPV31	E2	VCQDKILEH	10	9		34912
HPV31	E2	VCQDKILEHY	10	10		34913
HPV31	E2	VDSVNCGVISA	267	11		34914
HPV31	E2	VFSSDEISF	199	9		34915
HPV31	E2	VFSSDEISFA	199	10		34916
HPV31	E2	VIVFPESVF	192	9		34917
HPV31	E2	VSCPATTPIIH	287	11		34918
HPV31	E2	VSKAKALQA	64	9		34919
HPV31	E2	VTLYISTSOR	340	11		34920
HPV31	E2	VVEGQVNCK	147	9		34921
HPV31	E2	VVPALSVSK	58	9		34922
HPV31	E2	VVPALSVSKA	58	10		34923
HPV31	E2	VVPALSVSKAK	58	11		34924
HPV31	E2	WTCTDGKHK	328	8		34925
HPV31	E2	WTCTDGKHKH	328	9		34926
HPV31	E2	WTCTDGKHKNA	328	11		34927
HPV31	E2	WTMQQTSLELY	92	11		34928
HPV31	E2	YFVNFTTEA	167	9		34929
HPV31	E2	YFVNFTTEAK	167	10		34930
HPV31	E2	YFVNFTTEAKK	167	11		34931
HPV31	E2	YGTGKKWEVH	178	10		34932
HPV31	E2	YGTGKKWEVHA	178	11		34933
HPV31	E2	YISTSQRDDF	344	10		34934
HPV31	E2	YLTAPTGLK	102	10		34935
HPV31	E2	YLTAPTGLKK	102	11		34936
HPV31	E2	YTNWKFIY	131	8		34937
HPV31	E2	YVHEGHITY	159	9		34938
HPV31	E2	YVHEGHITYF	159	10		34939
HPV31	E5	ATSPRLRCF	53	8		34940
HPV31	E5	ATSPRLRCFIY	53	11		34941
HPV31	E5	CFCIYVVF	59	8		34942
HPV31	E5	CFCIYVVFY	59	10		34943
HPV31	E5	CFLLCFVCLLF	14	11		34944
HPV31	E5	CIYVVFY	61	8		34945
HPV31	E5	CVLLFVCLVIR	20	11		34946
HPV31	E5	FCIYVVFY	60	9		34947
HPV31	E5	FIYPLFVIIH	66	10		34948
HPV31	E5	FLLCFCVCLLF	15	10		34949
HPV31	E5	FVIHTHASF	72	9		34950
HPV31	E5	IATSPRLRCF	52	9		34951
HPV31	E5	ILWVIATSPRLR	48	11		34952
HPV31	E5	ISTVSIVLCF	6	10		34953
HPV31	E5	IVILWVIA	46	8		34954
HPV31	E5	IVLCFLLCF	11	9		34955
HPV31	E5	LCFCVCLLF	17	8		34956

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E5	LFVCLVIR	23	8		34957
HPV31	E5	LFVIHTHA	71	8		34958
HPV31	E5	LFVIHTHASF	71	10		34959
HPV31	E5	LIVILWVIA	45	9		34960
HPV31	E5	LLCFCVLLF	16	9		34961
HPV31	E5	LLFVCLVIR	22	9		34962
HPV31	E5	LLVILWVIA	44	10		34963
HPV31	E5	LLLIVLWVIA	43	11		34964
HPV31	E5	LVLSVSVY	32	8		34965
HPV31	E5	LVLSVSVYA	32	9		34966
HPV31	E5	NISTVSVLCLF	5	11		34967
HPV31	E5	PLFVIHITH	70	8		34968
HPV31	E5	PLFVIHITHA	70	9		34969
HPV31	E5	PLFVIHITHASF	70	11		34970
HPV31	E5	PLRCFCIY	56	8		34971
HPV31	E5	PLRCFCIYVVF	56	11		34972
HPV31	E5	PLVLSVSVY	31	9		34973
HPV31	E5	PLVLSVSVYA	31	10		34974
HPV31	E5	RCFCIYVVF	58	9		34975
HPV31	E5	RCFCIYVVFY	58	11		34976
HPV31	E5	SIVLCFLLCF	10	10		34977
HPV31	E5	STVSVLCLF	7	9		34978
HPV31	E5	TSPLRCFCIY	54	10		34979
HPV31	E5	TVSVLCLF	8	8		34980
HPV31	E5	VFIYIPLF	65	8		34981
HPV31	E5	VFIYIPLFVHI	65	11		34982
HPV31	E5	VIATSPRL	51	8		34983
HPV31	E5	VIATSPRLCF	51	10		34984
HPV31	E5	VIHTHASF	73	8		34985
HPV31	E5	VLCFLLCF	12	8		34986
HPV31	E5	VLLFVCLVIR	21	10		34987
HPV31	E5	VLSVSVYA	33	8		34988
HPV31	E5	VSIVLCFLLCF	9	11		34989
HPV31	E5	VVFIYIPLF	64	9		34990
HPV31	E5	WVIATSPRL	50	9		34991
HPV31	E5	WVIATSPRLCF	50	11		34992
HPV31	E5	YIPLFVHI	68	8		34993
HPV31	E5	YIPLFVHIH	68	10		34994
HPV31	E5	YIPLFVHIHTHA	68	11		34995
HPV31	E5	YVVFYIPLF	63	10		34996
HPV31	E5	AFTDLTIVY	46	9		34997
HPV31	E6	AFTDLTIVYR	46	10		34998
HPV31	E6	ALEIPYDEL	18	10		34999
HPV31	E6	CIACWRRPR	136	9		35000
HPV31	E6	CLRFYSKVSEF	66	11		35001
HPV31	E6	CTKCLRPFY	63	8		35002

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E6	CTKCLRFYSK	63	10		35003
HPV31	E6	DDTPHGVCTK	56	10		35004
HPV31	E6	DFAFTDLTIVY	44	11		35005
HPV31	E6	DLLIRCITCQR	98	11		35006
HPV31	E6	DTPHGVCTK	57	9		35007
HPV31	E6	EFRWYRYSVY	75	10		35008
HPV31	E6	EIPYDELR	20	8		35009
HPV31	E6	ELRLNCVY	25	8		35010
HPV31	E6	ELRLNCVYCK	25	10		35011
HPV31	E6	ELSSALEIPY	14	10		35012
HPV31	E6	ETEVLDFAF	39	8		35013
HPV31	E6	ETEVLDFAF	39	9		35014
HPV31	E6	FAFTDLTIVY	45	10		35015
HPV31	E6	FAFTDLTIVYR	45	11		35016
HPV31	E6	FTDLTIVY	47	8		35017
HPV31	E6	FTDLTIVYR	47	9		35018
HPV31	E6	GGRWTGRCIA	129	10		35019
HPV31	E6	GICDLLIR	95	8		35020
HPV31	E6	GTTLEKLTNK	85	10		35021
HPV31	E6	GVCTKCLR	61	8		35022
HPV31	E6	GVCTKCLRF	61	9		35023
HPV31	E6	GVCTKCLRFY	61	10		35024
HPV31	E6	HGVCTKCLR	60	9		35025
HPV31	E6	HGVCTKCLRF	60	10		35026
HPV31	E6	HGVCTKCLRFY	60	11		35027
HPV31	E6	HLDKKKRF	118	8		35028
HPV31	E6	HLDKKKRFH	118	9		35029
HPV31	E6	IACWRRPR	137	8		35030
HPV31	E6	IGGRWTGR	128	8		35031
HPV31	E6	IGGRWTGRCIA	128	11		35032
HPV31	E6	IVYRDDTPH	52	9		35033
HPV31	E6	KCLRFYSK	65	8		35034
HPV31	E6	KGICDLLIR	94	9		35035
HPV31	E6	KLHELSSA	11	8		35036
HPV31	E6	KVSEFRWY	72	8		35037
HPV31	E6	KVSEFRWYR	72	9		35038
HPV31	E6	KVSEFRWYRY	72	10		35039
HPV31	E6	LCPEEKQR	110	8		35040
HPV31	E6	LCPEEKQRH	110	9	0.0003	35041
HPV31	E6	LDKKKRFH	119	8		35042
HPV31	E6	LIRCITCQR	100	9		35043
HPV31	E6	LLIRCITCQR	99	10		35044
HPV31	E6	LSSALEIPY	15	9		35045
HPV31	E6	LTETEVLDF	37	9		35046
HPV31	E6	LTETEVLDFAF	37	10		35047
HPV31	E6	LTETEVLDFAF	37	11		35048

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E6	LTIVYRDDTPH	50	11		35049
HPV31	E6	MFKNPAER	1	8		35050
HPV31	E6	MFKNPAERPR	1	10		35051
HPV31	E6	MFKNPAERPRK	1	11		35052
HPV31	E6	NIGGRWTGR	127	9		35053
HPV31	E6	PAERPRKLH	5	9		35054
HPV31	E6	PLCPEEKQR	109	9	0.0002	35055
HPV31	E6	PLCPEEKQRH	109	10		35056
HPV31	E6	QLTETEVLDF	36	10		35057
HPV31	E6	QLTETEVLDF	36	11		35058
HPV31	E6	RCIACWRR	135	8		35059
HPV31	E6	RCIACWRRPR	135	10		35060
HPV31	E6	RDDTPHGVCTK	55	11		35061
HPV31	E6	RFHNIGGR	124	8		35062
HPV31	E6	RFYSKVSEF	68	9		35063
HPV31	E6	RFYSKVSEFR	68	10		35064
HPV31	E6	RLNCVYCK	27	8		35065
HPV31	E6	SALEIPYDEL	17	11		35066
HPV31	E6	SSALEIPY	16	8		35067
HPV31	E6	SVYGTTEK	82	9		35068
HPV31	E6	TCORPLCPEEK	105	11		35069
HPV31	E6	TDLTIYR	48	8		35070
HPV31	E6	TGRCIACWR	133	9		35071
HPV31	E6	TGRCIACWRR	133	10		35072
HPV31	E6	TIVYRDDTPH	51	10		35073
HPV31	E6	TLEKLTNK	87	8		35074
HPV31	E6	TLEKLTNK	86	9		35075
HPV31	E6	VCTKCLRF	62	8		35076
HPV31	E6	VCTKCLRFY	62	9		35077
HPV31	E6	VCTKCLRFYSK	62	11		35078
HPV31	E6	VSEFRWYR	73	8		35079
HPV31	E6	VSEFRWYR	73	9		35080
HPV31	E6	WTGRCIACWR	132	10		35081
HPV31	E6	WTGRCIACWRR	132	11		35082
HPV31	E6	YDELRLNCVY	23	10		35083
HPV31	E6	YGTTEKLTNK	84	11		35084
HPV31	E6	YSKVSEFR	70	8		35085
HPV31	E6	YSKVSEFRWY	70	10		35086
HPV31	E6	YSKVSEFRWYR	70	11		35087
HPV31	E6	YSVYGTTEK	81	10		35088
HPV31	E7	AGQAEPTSNY	42	11		35089
HPV31	E7	CCQCKSTLR	58	9		35090
HPV31	E7	CVQSTQVDIR	68	10		35091
HPV31	E7	DLQPEATDLH	14	10		35092
HPV31	E7	DTSNYNIVTF	48	10		35093
HPV31	E7	DVIDSPAGQA	36	10		35094

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	E7	EATDLHCY	18	8		35095
HPV31	E7	EDVIDSPA	35	8		35096
HPV31	E7	EDVIDSPAGQA	35	11		35097
HPV31	E7	ETPTLQDY	4	8		35098
HPV31	E7	FCCQCKSTLR	57	10		35099
HPV31	E7	FGVCPNCSTR	87	11		35100
HPV31	E7	GIVCPNCSTR	88	10		35101
HPV31	E7	IDSPAGQA	38	8		35102
HPV31	E7	ILQELLMGSF	78	10		35103
HPV31	E7	IVCPNCSTR	89	9		35104
HPV31	E7	IVTFCCQCK	54	9		35105
HPV31	E7	LCVQSTQVDIR	67	11		35106
HPV31	E7	LDLQPEATDLH	13	11		35107
HPV31	E7	NIVTFCCQCK	53	10		35108
HPV31	E7	PDTSNYNIVTF	47	11		35109
HPV31	E7	QAEPTDSNY	44	9		35110
HPV31	E7	QDYVLDLQPEA	9	11		35111
HPV31	E7	QSTQVDIR	70	8		35112
HPV31	E7	RGETPTLQDY	2	10		35113
HPV31	E7	RILQELLMGSF	77	11		35114
HPV31	E7	SDEEDVIDSPA	32	11		35115
HPV31	E7	TFCCQCKSTLR	56	11		35116
HPV31	E7	TSNYNIVTF	49	9		35117
HPV31	E7	VCPCNCSTR	90	8		35118
HPV31	E7	VIDSPAGQA	37	9		35119
HPV31	E7	VLDLQPEA	12	8		35120
HPV31	E7	VTFCCQCK	55	8		35121
HPV31	E7	YVLDLQPEA	11	9		35122
HPV31	L1	AAIANSDTTF	347	10		35123
HPV31	L1	AAIANSDTTFK	347	11		35124
HPV31	L1	ACVGLEVGR	102	9		35125
HPV31	L1	ADIMTYIH	386	8		35126
HPV31	L1	ADLDQFPLGR	458	10		35127
HPV31	L1	ADLDQFPLGRK	458	11		35128
HPV31	L1	AGGPGTDNR	137	9		35129
HPV31	L1	AGKRSAPSA	483	9		35130
HPV31	L1	AGSARLLTVGH	37	11		35131
HPV31	L1	AGYRARP	473	8		35132
HPV31	L1	AGYRARP	473	9		35133
HPV31	L1	AGYRARP	473	10		35134
HPV31	L1	AGYRARP	473	11		35135
HPV31	L1	AIANSDTTF	348	9		35136
HPV31	L1	AIANSDTTFK	348	10		35137
HPV31	L1	AILEDWNF	398	8		35138
HPV31	L1	AITCQKTA	426	8		35139
HPV31	L1	AITCQKTAPQK	426	11		35140

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	AMDFTALQDTK	208	11		35141
HPV31	L1	ASTTTPAK	491	8		35142
HPV31	L1	ASTTTPAKR	491	9		35143
HPV31	L1	ASTTTPAKRK	491	10		35144
HPV31	L1	ASTTTPAKRKK	491	11		35145
HPV31	L1	ATLANSTY	285	8		35146
HPV31	L1	ATLANSTYF	285	9		35147
HPV31	L1	CAAIANSDDTF	346	11		35148
HPV31	L1	CVGLEVGR	103	8		35149
HPV31	L1	DAQIFNKPY	304	9		35150
HPV31	L1	DCPPLELK	185	8		35151
HPV31	L1	DDTENSNR	128	8		35152
HPV31	L1	DDTENSRY	128	9		35153
HPV31	L1	DDTENSRYA	128	10		35154
HPV31	L1	DFTALQDTK	210	9		35155
HPV31	L1	DGDMVDTFG	198	9		35156
HPV31	L1	DGDMVDTFGGA	198	11		35157
HPV31	L1	DICNSICK	224	8		35158
HPV31	L1	DICNSICKY	224	9		35159
HPV31	L1	DLDDQFPLGR	459	9		35160
HPV31	L1	DLDDQFPLGRK	459	10		35161
HPV31	L1	DLDDQFPLGRKF	459	11		35162
HPV31	L1	DLQFIFQLCK	372	10		35163
HPV31	L1	DLYIKSGSTA	275	11		35164
HPV31	L1	DMVDTFGGA	200	9		35165
HPV31	L1	DTENSRY	129	8		35166
HPV31	L1	DTENSRYA	129	9		35167
HPV31	L1	DTGFGAMDF	203	9		35168
HPV31	L1	DTGFGAMDFTA	203	11		35169
HPV31	L1	DTLFFYLRL	245	8		35170
HPV31	L1	DTLFFYLRLR	245	9		35171
HPV31	L1	DTSFYNPETQR	88	11		35172
HPV31	L1	DTTFKSSNF	353	9		35173
HPV31	L1	DTTFKSSNFK	353	10		35174
HPV31	L1	DTYRFVTSQA	417	10		35175
HPV31	L1	ECISMDYK	146	8		35176
HPV31	L1	EDPFKDYVF	439	9		35177
HPV31	L1	EDTYRFVTSQA	416	11		35178
HPV31	L1	EFDLQFIF	370	8		35179
HPV31	L1	ESVPTDLY	270	8		35180
HPV31	L1	ESVPTDLYIK	270	10		35181
HPV31	L1	ETQRLVWA	95	8		35182
HPV31	L1	EVNLKEKF	449	8		35183
HPV31	L1	EVNLKEKFS	449	10		35184
HPV31	L1	FDDTENSNR	127	9		35185
HPV31	L1	FDDTENSRY	127	10		35186

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	FDDTENSRYA	127	11		35187
HPV31	L1	FDLQFIFQLCK	371	11		35188
HPV31	L1	FFYLRRQMF	248	10		35189
HPV31	L1	FGAMDFTA	206	8		35190
HPV31	L1	FGPDTSF	84	8		35191
HPV31	L1	FGPDTSFY	84	9		35192
HPV31	L1	FLLQAGYR	469	8		35193
HPV31	L1	FLLQAGYRA	469	9		35194
HPV31	L1	FLLQAGYRAR	469	10		35195
HPV31	L1	FSADLDQF	456	8		35196
HPV31	L1	FTALQDTK	211	8		35197
HPV31	L1	FVRHFFNR	257	8		35198
HPV31	L1	FVTSQAITCQK	421	11		35199
HPV31	L1	FVTVDVTR	331	9		35200
HPV31	L1	GCKPPIGE	161	9		35201
HPV31	L1	GDCPPLELK	184	9		35202
HPV31	L1	GDMVDTFG	199	8		35203
HPV31	L1	GDMVDTFGA	199	10		35204
HPV31	L1	GDTLFFYL	244	9		35205
HPV31	L1	GDTLFFYLRR	244	10		35206
HPV31	L1	GFGAMDFTA	205	9		35207
HPV31	L1	GFPDTSFY	85	8		35208
HPV31	L1	GGPGTDNR	138	8		35209
HPV31	L1	GICWGNQLF	323	9		35210
HPV31	L1	GISGHPLLNK	117	10		35211
HPV31	L1	GISGHPLLNKF	117	11		35212
HPV31	L1	GLQYRVFR	68	8		35213
HPV31	L1	GLQYRVFRVR	68	10		35214
HPV31	L1	GSARLLTVGH	38	10		35215
HPV31	L1	GSGSTATLA	280	9		35216
HPV31	L1	GSLEDTYR	413	8		35217
HPV31	L1	GSLEDTYRF	413	9		35218
HPV31	L1	GSMVTSDA	298	8		35219
HPV31	L1	GSMVTSDAQIF	298	11		35220
HPV31	L1	GSPCSNNA	173	8		35221
HPV31	L1	GSTATLANSTY	282	11		35222
HPV31	L1	HGEFDLQF	367	9		35223
HPV31	L1	HGEFDLQFIF	367	11		35224
HPV31	L1	IANSDTTF	349	8		35225
HPV31	L1	IANSDTTFK	349	9		35226
HPV31	L1	ICKYPDYLK	229	9		35227
HPV31	L1	ICNSICKY	225	8		35228
HPV31	L1	ICNSICKYPDY	225	11		35229
HPV31	L1	ICWGNQLF	324	8		35230
HPV31	L1	IFNKPYWMQR	307	10		35231
HPV31	L1	IFNKPYWMQRA	307	11		35232

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	IFQLCKITLSA	376	11		35233
HPV31	L1	IMTYIHSMNPA	388	11		35234
HPV31	L1	ISGHPLLNK	118	9		35235
HPV31	L1	ISGHPLLNKF	118	10		35236
HPV31	L1	ITCQKTAPQK	427	10		35237
HPV31	L1	ITLSADIMTY	382	10		35238
HPV31	L1	IVVPKVSGLQY	61	11		35239
HPV31	L1	KAGKRSAPSA	482	10		35240
HPV31	L1	KDYVFWEVNLK	443	11		35241
HPV31	L1	KFDDTENSNR	126	10		35242
HPV31	L1	KFDDTENSRY	126	11		35243
HPV31	L1	KFGFPTDSF	83	9		35244
HPV31	L1	KFGFPTDSFY	83	10		35245
HPV31	L1	KFKAGKRSA	480	9		35246
HPV31	L1	KFLAQAGY	468	8		35247
HPV31	L1	KFLAQAGYR	468	9		35248
HPV31	L1	KFLAQAGYRA	468	10		35249
HPV31	L1	KFLAQAGYRAR	468	11		35250
HPV31	L1	KFSADLDQF	455	9		35251
HPV31	L1	KSGSTATLA	279	10		35252
HPV31	L1	KGSPCSNNA	172	9		35253
HPV31	L1	KITLSADIMTY	381	11		35254
HPV31	L1	KSSNFKEY	357	8		35255
HPV31	L1	KSSNFKEYLR	357	10		35256
HPV31	L1	KSSNFKEYLRH	357	11		35257
HPV31	L1	KTAQKPK	431	8		35258
HPV31	L1	KVSGLQYR	65	8		35259
HPV31	L1	KVSGLQYRVF	65	10		35260
HPV31	L1	KVSGLQYRVFR	65	11		35261
HPV31	L1	KVSTDEY	20	8		35262
HPV31	L1	KVVSTDEYVTR	20	11		35263
HPV31	L1	LCKITLSA	379	8		35264
HPV31	L1	LDICNSICK	223	9		35265
HPV31	L1	LDICNSICKY	223	10		35266
HPV31	L1	LDQFPLGR	460	8		35267
HPV31	L1	LDQFPLGRK	460	9		35268
HPV31	L1	LDQFPLGRKF	460	10		35269
HPV31	L1	LFYLRREQMF	247	11		35270
HPV31	L1	LFVTVDVTR	330	10		35271
HPV31	L1	LGCKPPIGEH	160	10		35272
HPV31	L1	LGRKFLIQA	465	9		35273
HPV31	L1	LGRKFLIQAAGY	465	11		35274
HPV31	L1	LGVGISGH	114	8		35275
HPV31	L1	LLGCKPPIGEH	159	11		35276
HPV31	L1	LLQAGYRA	470	8		35277
HPV31	L1	LLQAGYRAR	470	9		35278

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	LLQAGYRARPK	470	11		35279
HPV31	L1	LLTVGHPY	42	8		35280
HPV31	L1	LLTVGHPYY	42	9		35281
HPV31	L1	LSADIMTY	384	8		35282
HPV31	L1	LSADIMTYIH	384	10		35283
HPV31	L1	LTVGHPYY	43	8		35284
HPV31	L1	MDFTALQDTK	209	10		35285
HPV31	L1	MFVRHFFNR	256	9		35286
HPV31	L1	MSLWRPSEA	1	9		35287
HPV31	L1	MSVCAAIA	343	8		35288
HPV31	L1	MTYIHSMNPA	389	10		35289
HPV31	L1	MVAEPYGDTLF	238	11		35290
HPV31	L1	MVDTGFGA	201	8		35291
HPV31	L1	MVDTGFGAMDF	201	11		35292
HPV31	L1	MVTSDAQIF	300	9		35293
HPV31	L1	MVTSDAQIFNK	300	11		35294
HPV31	L1	NFKEYLRH	360	8		35295
HPV31	L1	NGICWGNQLF	322	10		35296
HPV31	L1	NIYYHAGSA	32	9		35297
HPV31	L1	NIYYHAGSAR	32	10		35298
HPV31	L1	NLKEKFS	451	8		35299
HPV31	L1	NMSVCAAIA	342	9		35300
HPV31	L1	NSDTTFKSNF	351	11		35301
HPV31	L1	NSICKYPDY	227	9		35302
HPV31	L1	NSICKYPDYLK	227	11		35303
HPV31	L1	PALEDWNF	397	9		35304
HPV31	L1	PAKRKKTG	496	8		35305
HPV31	L1	PAKRKKTGK	496	9		35306
HPV31	L1	PDPNKFGE	79	8		35307
HPV31	L1	PDYLLKMTVA	233	8		35308
HPV31	L1	PDYLLKMTVAEPY	233	11		35309
HPV31	L1	PGDCPPLK	183	10		35310
HPV31	L1	PIGEHWGK	165	8		35311
HPV31	L1	PLDICNSICK	222	10		35312
HPV31	L1	PLDICNSICKY	222	11		35313
HPV31	L1	PLGRKFLQA	464	10		35314
HPV31	L1	PLGVGISGH	113	9		35315
HPV31	L1	PSASTTTTPA	489	9		35316
HPV31	L1	PSASTTTTPAK	489	10		35317
HPV31	L1	PSASTTTTPAKR	489	11		35318
HPV31	L1	PSGSLEDY	411	9		35319
HPV31	L1	PSGSLEDTYR	411	10		35320
HPV31	L1	PSGSLEDTYRF	411	11		35321
HPV31	L1	PSGSMVTSDA	296	10		35322
HPV31	L1	PVSKVVSTDEY	17	11		35323
HPV31	L1	QAGYRARPK	472	9		35324

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	QAGYRARPKE	472	10		35325
HPV31	L1	QAGYRARPKE	472	11		35326
HPV31	L1	QAITCKTA	425	9		35327
HPV31	L1	QDGMVDTF	197	10		35328
HPV31	L1	QFQLCK	374	8		35329
HPV31	L1	QFPLGRK	462	8		35330
HPV31	L1	QIFNKPYWMQR	306	11		35331
HPV31	L1	QLCKITLSA	378	9		35332
HPV31	L1	QLCLLCK	156	8		35333
HPV31	L1	QLFVTVVDTR	329	11		35334
HPV31	L1	QMFVRHFF	255	8		35335
HPV31	L1	QMFVRHFFNR	255	10		35336
HPV31	L1	QTQLCLLCK	154	10		35337
HPV31	L1	RARPKEKA	476	8		35338
HPV31	L1	RARPKEKAGK	476	10		35339
HPV31	L1	RARPKEKAGKR	476	11		35340
HPV31	L1	RLLTVGHPY	41	9		35341
HPV31	L1	RLLTVGHPY	41	10		35342
HPV31	L1	RLDPNKF	77	8		35343
HPV31	L1	RLDPNKF	77	10		35344
HPV31	L1	RSTNMSVCA	339	9		35345
HPV31	L1	RSTNMSVCA	339	10		35346
HPV31	L1	RTNIYYHA	30	8		35347
HPV31	L1	RTNIYYHAGSA	30	11		35348
HPV31	L1	RVRLPDNKF	75	9		35349
HPV31	L1	RVRLPDNKF	75	10		35350
HPV31	L1	SADIMTYIH	385	9		35351
HPV31	L1	SADLDQFPLGR	457	11		35352
HPV31	L1	SAPSASTTTPA	487	11		35353
HPV31	L1	SARLLTVGH	39	9		35354
HPV31	L1	SARLLTVGHPY	39	11		35355
HPV31	L1	SASTTTPA	490	8		35356
HPV31	L1	SASTTTPAK	490	9		35357
HPV31	L1	SASTTTPAKR	490	10		35358
HPV31	L1	SASTTTPAKRK	490	11		35359
HPV31	L1	SDAQIFNK	303	8		35360
HPV31	L1	SDAQIFNKPY	303	10		35361
HPV31	L1	SDNPKKIVPK	55	11		35362
HPV31	L1	SDITFKSSNF	352	10		35363
HPV31	L1	SDITFKSSNF	352	11		35364
HPV31	L1	SFYNPETQR	90	9		35365
HPV31	L1	SGHPLLNK	119	8		35366
HPV31	L1	SGHPLLNK	119	9		35367
HPV31	L1	SGLQYRVF	67	8		35368
HPV31	L1	SGLQYRVF	67	9		35369
HPV31	L1	SGLQYRVFVR	67	11		35370

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	SGSLEDY	412	8		35371
HPV31	L1	SGSLEDYR	412	9		35372
HPV31	L1	SGSLEDYRF	412	10		35373
HPV31	L1	SGSMVTSDA	297	9		35374
HPV31	L1	SGSTATLA	281	8		35375
HPV31	L1	SICKYPDY	228	8		35376
HPV31	L1	SICKYPDYLK	228	10		35377
HPV31	L1	SIPKSDNPK	51	9		35378
HPV31	L1	SIPKSDNPKK	51	10		35379
HPV31	L1	SLEDYRF	414	8		35380
HPV31	L1	SLWRPSEA	2	8		35381
HPV31	L1	SLWRPSEATVY	2	11		35382
HPV31	L1	SMVTSDAQIF	299	10		35383
HPV31	L1	SSNFEKYL	358	9		35384
HPV31	L1	SSNFEKYLRLH	358	10		35385
HPV31	L1	STATLANSTY	283	10		35386
HPV31	L1	STATLANSTYF	283	11		35387
HPV31	L1	STDEYVTR	23	8		35388
HPV31	L1	STNMSVCA	340	8		35389
HPV31	L1	STNMSVCAA	340	9		35390
HPV31	L1	STNMSVCAAlA	340	11		35391
HPV31	L1	STTTPAKR	492	8		35392
HPV31	L1	STTTPAKRK	492	9		35393
HPV31	L1	STTTPAKRKK	492	10		35394
HPV31	L1	SVPTDLYIK	271	9		35395
HPV31	L1	TAPQPKEDPF	432	11		35396
HPV31	L1	TATLANSTY	284	9		35397
HPV31	L1	TATLANSTYF	284	10		35398
HPV31	L1	TCQKTAPOK	428	9		35399
HPV31	L1	TCQKTAPOKPK	428	11		35400
HPV31	L1	TDEYVTRNIY	24	11		35401
HPV31	L1	TDNRECISMDY	142	11		35402
HPV31	L1	TFKSSNFK	355	8		35403
HPV31	L1	TFKSSNFKEY	355	10		35404
HPV31	L1	TGFGAMDF	204	8		35405
HPV31	L1	TGFGAMDFTA	204	10		35406
HPV31	L1	TLANSTYF	286	8		35407
HPV31	L1	TLFFYLRR	246	8		35408
HPV31	L1	TLFADIMTY	383	9		35409
HPV31	L1	TLFADIMTYIH	383	11		35410
HPV31	L1	TSDAQIFNK	302	9		35411
HPV31	L1	TSDAQIFNKPY	302	11		35412
HPV31	L1	TSFYNPETQR	89	10		35413
HPV31	L1	TSQAITCQK	423	9		35414
HPV31	L1	TSQAITCQKTA	423	11		35415
HPV31	L1	TTFKSSNF	354	8		35416

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	TTFKSSNPK	354	9		35417
HPV31	L1	TTFKSSNFKEY	354	11		35418
HPV31	L1	TTPAKRKK	494	8		35419
HPV31	L1	TTPAKRKKTK	494	10		35420
HPV31	L1	TTPAKRKKTKK	494	11		35421
HPV31	L1	TTTRSTNMSVCA	337	11		35422
HPV31	L1	TTTPAKRK	493	8		35423
HPV31	L1	TTTPAKRKK	493	9		35424
HPV31	L1	TTTPAKRKKTK	493	11		35425
HPV31	L1	TVGESVPTDLY	267	11		35426
HPV31	L1	TVGHPYYSIPK	44	11		35427
HPV31	L1	TVYLPVPVPSK	10	11		35428
HPV31	L1	VAEPYGDTLF	239	10		35429
HPV31	L1	VAEPYGDTLFF	239	11		35430
HPV31	L1	VDTGFAMDF	202	10		35431
HPV31	L1	VFRVRLDPNPK	73	11		35432
HPV31	L1	VFEVNLK	446	8		35433
HPV31	L1	VFEVNLKEK	446	10		35434
HPV31	L1	VFEVNLKEKF	446	11		35435
HPV31	L1	VGESVPTDLY	268	10		35436
HPV31	L1	VGHPYYSIPK	45	10		35437
HPV31	L1	VGISGHPLLNK	116	11		35438
HPV31	L1	VSGLYRVF	66	9		35439
HPV31	L1	VSGLYRVFR	66	10		35440
HPV31	L1	VSKVVSTDEY	18	10		35441
HPV31	L1	VSTDEYVTR	22	9		35442
HPV31	L1	VTRINYY	28	8		35443
HPV31	L1	VTRINYYH	28	9		35444
HPV31	L1	VTRINYYHA	28	10		35445
HPV31	L1	VTSDAQIF	301	8		35446
HPV31	L1	VTSDAQIFNK	301	10		35447
HPV31	L1	VTQAITCQK	422	10		35448
HPV31	L1	VTVDVTR	332	8		35449
HPV31	L1	VVPKVSGLQY	62	10		35450
HPV31	L1	VVPKVSGLQYR	62	11		35451
HPV31	L1	VVSTDEVVTR	21	10		35452
HPV31	L1	WACVGLVGR	101	10		35453
HPV31	L1	WGKGSPCSNNA	170	11		35454
HPV31	L1	WMQRAQGH	313	8		35455
HPV31	L1	YAGGPGTDNR	136	10		35456
HPV31	L1	YGDITLFFY	243	8		35457
HPV31	L1	YGDITLFFYL	243	10		35458
HPV31	L1	YGDITLFFYLRR	243	11		35459
HPV31	L1	YIHSMNPA	391	8		35460
HPV31	L1	YIKGSGSTA	277	9		35461
HPV31	L1	YMKMVAEPY	235	9		35462

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L1	YLPVPVPSK	12	9		35463
HPV31	L1	YLRHGEF	364	8		35464
HPV31	L1	YLRREQMF	250	8		35465
HPV31	L1	YLRREQMFVR	250	10		35466
HPV31	L1	YLRREQMFVRH	250	11		35467
HPV31	L1	YSIPKSDNPK	50	10		35468
HPV31	L1	YSIPKSDNPKK	50	11		35469
HPV31	L1	YVFWEVNLK	445	9		35470
HPV31	L1	YVFWEVNLKEK	445	11		35471
HPV31	L1	YVTRTNIY	27	8		35472
HPV31	L1	YVTRTNIYY	27	9		35473
HPV31	L1	YVTRTNIYYH	27	10		35474
HPV31	L1	YVTRTNIYYHA	27	11		35475
HPV31	L2	ADTDFVDTTPA	357	11		35476
HPV31	L2	AGTCPSDVIPK	25	11		35477
HPV31	L2	AILDVTSVSTH	143	11		35478
HPV31	L2	ALHRPALTSR	281	10		35479
HPV31	L2	ALHRPALTSRR	281	11		35480
HPV31	L2	ALTSRRNTVR	286	10		35481
HPV31	L2	ALTSRRNTVRY	286	11		35482
HPV31	L2	ASATQLYQTCK	13	11		35483
HPV31	L2	ATHNVPSTA	367	10		35484
HPV31	L2	ATIGARVH	311	8		35485
HPV31	L2	ATIGARVHY	311	9		35486
HPV31	L2	ATIGARVHY	311	10		35487
HPV31	L2	ATIGARVHYYY	311	11		35488
HPV31	L2	ATQLYQTCK	15	9		35489
HPV31	L2	ATQLYQTCKA	15	10		35490
HPV31	L2	ATQLYQTCKAA	15	11		35491
HPV31	L2	ATTADITPA	135	9		35492
HPV31	L2	AVQSTSAVSA	376	10		35493
HPV31	L2	AVQSTSAVSAY	376	11		35494
HPV31	L2	DFLDIIALH	275	9		35495
HPV31	L2	DFLDIIALHR	275	10		35496
HPV31	L2	DFTVDTTPA	360	8		35497
HPV31	L2	DFTVDTTPATH	360	10		35498
HPV31	L2	DFYLHPSY	438	8		35499
HPV31	L2	DFYLHPSYY	438	9		35500
HPV31	L2	DGGDFYLIH	435	8		35501
HPV31	L2	DGGDFYLIHPSY	435	11		35502
HPV31	L2	DGLYDIYA	350	8		35503
HPV31	L2	DIATTADTTPA	133	11		35504
HPV31	L2	DIALLHRPA	278	9		35505
HPV31	L2	DISSINPA	322	8		35506
HPV31	L2	DIYADTDF	354	8		35507
HPV31	L2	DTDFTVDTTPA	358	10		35508

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L2	DVGAPAPIPH	116	10		35509
HPV31	L2	DVIPKIEH	31	8		35510
HPV31	L2	DVTSVSTH	146	8		35511
HPV31	L2	EMQPLGASA	334	9		35512
HPV31	L2	ESGIVDVGA	111	9		35513
HPV31	L2	ESGIVDVGAPA	111	11		35514
HPV31	L2	ESIEMQPLGA	331	10		35515
HPV31	L2	ESLYFSNTSH	259	10		35516
HPV31	L2	ETVNAEESLY	253	10		35517
HPV31	L2	ETVNAEESLYF	253	11		35518
HPV31	L2	FFTDVSVAA	458	8		35519
HPV31	L2	FFTDVSVAA	458	9		35520
HPV31	L2	FLDIALLH	276	8		35521
HPV31	L2	FLDIALLHR	276	9		35522
HPV31	L2	FLDIALLHRPA	276	11		35523
HPV31	L2	FLSAPKQLITY	237	11		35524
HPV31	L2	FSGPDVPIEH	404	10		35525
HPV31	L2	FSGPDVPIEHA	404	11		35526
HPV31	L2	FSNTSHNIA	263	9		35527
HPV31	L2	FTDVSVA	459	8		35528
HPV31	L2	FTVDTPATH	361	9		35529
HPV31	L2	FVDGGDFY	433	8		35530
HPV31	L2	FVDGGDFYLH	433	10		35531
HPV31	L2	GAPAPIPH	118	8		35532
HPV31	L2	GARVHY	314	8		35533
HPV31	L2	GATIGARVH	310	9		35534
HPV31	L2	GATIGARVHY	310	10		35535
HPV31	L2	GATIGARVHY	310	11		35536
HPV31	L2	GDFYLHPSY	437	9		35537
HPV31	L2	GDFYLHPSY	437	10		35538
HPV31	L2	GDFIATTA	131	8		35539
HPV31	L2	GGDFYLHPSY	436	10		35540
HPV31	L2	GGDFYLHPSY	436	11		35541
HPV31	L2	GIGSGGTGGR	59	11		35542
HPV31	L2	GIVDVGAPA	113	9		35543
HPV31	L2	GLYDIYADTDF	351	11		35544
HPV31	L2	GLYSKATQQVK	221	11		35545
HPV31	L2	GSGSGTGGR	61	9		35546
HPV31	L2	GSGTGRTGY	63	10		35547
HPV31	L2	GTCPSDVIK	26	10		35548
HPV31	L2	GTGRTGY	65	8		35549
HPV31	L2	GVRPRLGLY	213	11		35550
HPV31	L2	HAPTQVFPF	413	9		35551
HPV31	L2	HTTIADQILR	38	10		35552
HPV31	L2	HTTIADQILRY	38	11		35553
HPV31	L2	IADQILRY	41	8		35554

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L2	IALHRPALTSR	280	11		35555
HPV31	L2	IATTADTTTPA	134	10		35556
HPV31	L2	IDPTFLSA	233	8		35557
HPV31	L2	IDPTFLSAPK	233	10		35558
HPV31	L2	IFSGPDVPIEH	403	11		35559
HPV31	L2	IFVDGGDF	432	8		35560
HPV31	L2	IFVDGGDFY	432	9		35561
HPV31	L2	IFVDGGDFYLIH	432	11		35562
HPV31	L2	IGARVHY	313	8		35563
HPV31	L2	IGARVHY	313	9		35564
HPV31	L2	IGSGSGTGGR	60	10		35565
HPV31	L2	IHALHRPA	279	8		35566
HPV31	L2	ILDVTSVSTH	144	10		35567
HPV31	L2	ILRYGSMGVF	45	10		35568
HPV31	L2	ILRYGSMGVFF	45	11		35569
HPV31	L2	ITSSTPIGVR	205	11		35570
HPV31	L2	ITYENPAY	245	8		35571
HPV31	L2	IVDVGAPA	114	8		35572
HPV31	L2	KIEHTIA	35	8		35573
HPV31	L2	KVIDPTFLSA	231	10		35574
HPV31	L2	LAPTTQVSIF	423	11		35575
HPV31	L2	LDIALHR	277	8		35576
HPV31	L2	LDIALHRPA	277	10		35577
HPV31	L2	LDVTSVSTH	145	9		35578
HPV31	L2	LGKQTLR	299	8		35579
HPV31	L2	LGKQTLRTR	299	10		35580
HPV31	L2	LITYENPA	244	8		35581
HPV31	L2	LITYENPAY	244	9		35582
HPV31	L2	LLSSSSISTH	176	11		35583
HPV31	L2	LLSSSSISTH	177	10		35584
HPV31	L2	LSAPKQLITY	238	10		35585
HPV31	L2	LSSSSISTH	178	9		35586
HPV31	L2	LSSSSISTHNY	178	11		35587
HPV31	L2	LSTGFDPIF	395	10		35588
HPV31	L2	LSTRPSTVSEA	75	11		35589
HPV31	L2	LTSRRNTVR	287	9		35590
HPV31	L2	LTSRRNTVRY	287	10		35591
HPV31	L2	MLKRRRKR	447	8		35592
HPV31	L2	MLKRRRKRVS	447	11		35593
HPV31	L2	MLKRRRKRVS	447	8		35594
HPV31	L2	NAEESLYF	256	8		35595
HPV31	L2	NDGLYDIY	349	8		35596
HPV31	L2	NDGLYDIYA	349	9		35597
HPV31	L2	NIAPDPDF	269	8		35598
HPV31	L2	NTTVPLSTGF	390	10		35599
HPV31	L2	NTVYSRLGNK	292	11		35600
HPV31	L2	PALTSRRNTVR	285	11		35600

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L2	PARLGLYSK	217	9		35601
HPV31	L2	PARLGLYSKA	217	10		35602
HPV31	L2	PATHNVSPSTA	366	11		35603
HPV31	L2	PAYETVNA	250	8		35604
HPV31	L2	PDFLDIIA	274	8		35605
HPV31	L2	PDFLDIIALH	274	10		35606
HPV31	L2	PDFLDIIALHR	274	11		35607
HPV31	L2	PDPDFLDIIA	272	10		35608
HPV31	L2	PDVPIEHA	407	8		35609
HPV31	L2	PGVRRPAR	212	8		35610
HPV31	L2	PIEHAPTQVF	410	10		35611
HPV31	L2	PIPGVRRPA	210	9		35612
HPV31	L2	PIPGVRRPAR	210	10		35613
HPV31	L2	PIPHPTTSGF	122	11		35614
HPV31	L2	PLSTGFDIPIF	394	11		35615
HPV31	L2	PSDVIPIKIEH	29	10		35616
HPV31	L2	PSTAVQSTSA	373	10		35617
HPV31	L2	PSVLQPPTPA	161	10		35618
HPV31	L2	PSYMLKRR	443	8		35619
HPV31	L2	PSYMLKRRR	443	9		35620
HPV31	L2	PSYMLKRRRK	443	10		35621
HPV31	L2	PSYMLKRRRK	443	11		35622
HPV31	L2	PTFLSAPK	235	8		35623
HPV31	L2	PTPAETSGH	167	9		35624
HPV31	L2	PTQVFPFLA	415	10		35625
HPV31	L2	PTTPQVSIF	425	9		35626
HPV31	L2	PTTSGFDIA	127	9		35627
HPV31	L2	QILRYGSMGVF	44	11		35628
HPV31	L2	QLITYENPA	243	9		35629
HPV31	L2	QLITYENPAY	243	10		35630
HPV31	L2	QLYQTCKA	17	8		35631
HPV31	L2	QLYQTCKAA	17	9		35632
HPV31	L2	QSTSAVSA	378	8		35633
HPV31	L2	QSTSAVSAY	378	9		35634
HPV31	L2	QTLRTRSGA	303	9		35635
HPV31	L2	QVFPEPLA	417	8		35636
HPV31	L2	QVKVIDPTF	229	9		35637
HPV31	L2	QVSIFVDGGDF	429	11		35638
HPV31	L2	RASATQLY	12	8		35639
HPV31	L2	RLGLYSKA	219	8		35640
HPV31	L2	RLGNKQTLR	298	9		35641
HPV31	L2	RLGNKQTLRIR	298	11		35642
HPV31	L2	RSGATIGA	308	8		35643
HPV31	L2	RSGATIGAR	308	9		35644
HPV31	L2	RSGATIGARVHI	308	11		35645
HPV31	L2	RSKRSTKR	2	8		35646

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L2	RSKRSTKRTK	2	10		35647
HPV31	L2	RSKRSTKRTKR	2	11		35648
HPV31	L2	RSTKRTKR	5	8		35649
HPV31	L2	RSTKRTKRA	5	9		35650
HPV31	L2	RSTKRTKRASA	5	11		35651
HPV31	L2	RTGYVPLSTR	69	10		35652
HPV31	L2	RTKRASATQLY	9	11		35653
HPV31	L2	RTRSGATIGA	306	10		35654
HPV31	L2	RTRSGATIGAR	306	11		35655
HPV31	L2	SAPKQLITY	239	9		35656
HPV31	L2	SATQLYQTCK	14	10		35657
HPV31	L2	SATQLYQTCKA	14	11		35658
HPV31	L2	SDVIPKIEH	30	9		35659
HPV31	L2	SGATIGAR	309	8		35660
HPV31	L2	SGATIGARVH	309	10		35661
HPV31	L2	SGATIGARVHY	309	11		35662
HPV31	L2	SGFDIATTA	130	9		35663
HPV31	L2	SGIVDVGA	112	8		35664
HPV31	L2	SGIVDVGAPA	112	10		35665
HPV31	L2	SGPDVPIEH	405	9		35666
HPV31	L2	SGPDVPIEHA	405	10		35667
HPV31	L2	SGSGTGGR	62	8		35668
HPV31	L2	SGSGTGGRGTGY	62	11		35669
HPV31	L2	SGTGGRGTGY	64	9		35670
HPV31	L2	SIEMQPLGA	332	9		35671
HPV31	L2	SIEMQPLGASA	332	11		35672
HPV31	L2	SIFVDGGDF	431	9		35673
HPV31	L2	SIFVDGGDFY	431	10		35674
HPV31	L2	SLYFSNTSH	260	9		35675
HPV31	L2	SSISTHNY	181	8		35676
HPV31	L2	SSSISTHNY	180	9		35677
HPV31	L2	SSSSISTH	179	8		35678
HPV31	L2	SSSSISTHNY	179	10		35679
HPV31	L2	SSTPIPGVR	207	9		35680
HPV31	L2	SSTPIPGVRR	207	10		35681
HPV31	L2	STAVQSTSA	374	9		35682
HPV31	L2	STGFDPIF	396	9		35683
HPV31	L2	STHENPTF	151	8		35684
HPV31	L2	STKRTKRA	6	8		35685
HPV31	L2	STKRTKRASA	6	10		35686
HPV31	L2	STLNDGLY	346	8		35687
HPV31	L2	STLNDGLYDIY	346	11		35688
HPV31	L2	STPIPGVR	208	8		35689
HPV31	L2	STPIPGVRR	208	9		35690
HPV31	L2	STPIPGVRRPA	208	11		35691
HPV31	L2	STRPSTVSEA	76	10		35692

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L2	STSAVSAY	379	8		35693
HPV31	L2	STVSEASIPR	80	11		35694
HPV31	L2	SVLQPPTPA	162	9		35695
HPV31	L2	SVSTHENPTF	149	10		35696
HPV31	L2	TAVQSTSA	375	8		35697
HPV31	L2	TAVQSTSAVSA	375	11		35698
HPV31	L2	TCPSDVIPK	27	9		35699
HPV31	L2	TDFTVDTTPA	359	9		35700
HPV31	L2	TDFTVDTTPATH	359	11		35701
HPV31	L2	TGFDPIF	397	8		35702
HPV31	L2	TGYVPLSTR	70	9		35703
HPV31	L2	TIADQILR	40	8		35704
HPV31	L2	TIADQILRY	40	9		35705
HPV31	L2	TIGARVHY	312	8		35706
HPV31	L2	TIGARVHYV	312	9		35707
HPV31	L2	TIGARVHYVY	312	10		35708
HPV31	L2	TLNDGLYDIY	347	10		35709
HPV31	L2	TLNDGLYDIYA	347	11		35710
HPV31	L2	TLRTRSGA	304	8		35711
HPV31	L2	TSGFDIATTA	129	10		35712
HPV31	L2	TSHNIAPDPDF	266	11		35713
HPV31	L2	TSRRNTVR	288	8		35714
HPV31	L2	TSRRNTVRY	288	9		35715
HPV31	L2	TSRRNTVRYSR	288	11		35716
HPV31	L2	TSSTPIGVR	206	10		35717
HPV31	L2	TSSTPIGVRR	206	11		35718
HPV31	L2	TSTLNDGLY	345	9		35719
HPV31	L2	TSVSTHENPTF	148	11		35720
HPV31	L2	TTADTTPA	136	8		35721
HPV31	L2	TTIADQILR	39	9		35722
HPV31	L2	TTIADQILRY	39	10		35723
HPV31	L2	TTTPQVSIF	426	8		35724
HPV31	L2	TTSGFDIA	128	8		35725
HPV31	L2	TTSGFDIATTA	128	11		35726
HPV31	L2	TTSTLNDGLY	344	10		35727
HPV31	L2	TTTSTLNDGLY	343	11		35728
HPV31	L2	TTVPLSTGF	391	9		35729
HPV31	L2	TVDTPATH	362	8		35730
HPV31	L2	TVNAEESLY	254	9		35731
HPV31	L2	TVNAEESLYF	254	10		35732
HPV31	L2	TVPLSTGF	392	8		35733
HPV31	L2	TVRYSRGNGK	293	10		35734
HPV31	L2	TVSEASIPR	81	10		35735
HPV31	L2	VDGGDFYLI	434	9		35736
HPV31	L2	VDVGAPAPIPH	115	11		35737
HPV31	L2	VGAPAPIPH	117	9		35738

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV31	L2	VIDPTFLSA	232	9		35739
HPV31	L2	VIDPTFLSAPK	232	11		35740
HPV31	L2	VIPKIEHTTA	32	11		35741
HPV31	L2	VLQPTTPA	163	8		35742
HPV31	L2	VSEASIPR	82	9		35743
HPV31	L2	VSIFVDGGDF	430	10		35744
HPV31	L2	VSIFVDGGDFY	430	11		35745
HPV31	L2	VSTHENPTF	150	9		35746
HPV31	L2	VSYYFTDVSVA	455	11		35747
HPV31	L2	YDISSINPA	321	9		35748
HPV31	L2	YDIYADTDF	353	9		35749
HPV31	L2	YFETDVSVA	457	9		35750
HPV31	L2	YFETDVSVA	457	10		35751
HPV31	L2	YFSNTSHNIA	262	10		35752
HPV31	L2	YSGMGVFF	48	8		35753
HPV31	L2	YLHPSYYMLK	440	10		35754
HPV31	L2	YLHPSYYMLKR	440	11		35755
HPV31	L2	YMLKRRRK	446	8		35756
HPV31	L2	YMLKRRRRK	446	9		35757
HPV31	L2	YSKATQVVK	223	9		35758
HPV31	L2	YSRLGNKQTLR	296	11		35759
HPV33	E1	AAAFKNSQA	382	11		35760
HPV33	E1	AACSQSA	90	8		35761
HPV33	E1	AAEDVVDR	96	8		35762
HPV33	E1	AAEDVVDR	96	9		35763
HPV33	E1	AAEDVVDR	96	10		35764
HPV33	E1	AAFLKNSQA	383	10		35765
HPV33	E1	AAFLKNSQAK	383	11		35766
HPV33	E1	AANPCRTSINK	104	11		35767
HPV33	E1	ADDSGTDLLEF	40	11		35768
HPV33	E1	ADPEGTNGA	2	9		35769
HPV33	E1	ADSNNA	376	8		35770
HPV33	E1	ADSNNA	376	9		35771
HPV33	E1	ADSNNA	376	10		35772
HPV33	E1	ADTEAARA	61	8		35773
HPV33	E1	ADTEAARALF	61	10		35774
HPV33	E1	AFKFLKGIPK	452	11		35775
HPV33	E1	AFLGAFKK	448	8		35776
HPV33	E1	AFLGAFKKF	448	9		35777
HPV33	E1	AFLGAFKKFLK	448	11		35778
HPV33	E1	AFLKNSQA	384	9		35779
HPV33	E1	AFLKNSQAK	384	10		35780
HPV33	E1	AGENTRSLR	635	9		35781
HPV33	E1	AGMGCTGWF	10	9		35782
HPV33	E1	AGTDSRWPY	563	9		35783
HPV33	E1	AGTDSRWPYLH	563	11		35784

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	AINDENWK	596	8		35785
HPV33	E1	AINDENWKSFF	596	10		35786
HPV33	E1	AINDENWKSFF	596	11		35787
HPV33	E1	ALKRKFAA	84	8		35788
HPV33	E1	ALYWFRTA	311	8		35789
HPV33	E1	AVCALKRKF	81	8		35790
HPV33	E1	AVCALKRKF	81	9		35791
HPV33	E1	AVCALKRKFA	81	10		35792
HPV33	E1	AVCALKRKFAA	81	11		35793
HPV33	E1	CALKRKFA	83	8		35794
HPV33	E1	CALKRKFAA	83	9		35795
HPV33	E1	CALYWFRTA	310	9		35796
HPV33	E1	CGIMCRHY	398	8		35797
HPV33	E1	CGIMCRHYK	398	9		35798
HPV33	E1	CGIMCRHYKK	398	10		35799
HPV33	E1	CGIMCRHYKKA	398	11		35800
HPV33	E1	CGPANTGK	469	8		35801
HPV33	E1	CGPANTGKSY	469	10		35802
HPV33	E1	CGPANTGKSYF	469	11		35803
HPV33	E1	CMLICGPA	465	8		35804
HPV33	E1	CMVIEPPK	297	8		35805
HPV33	E1	CMVIEPPKLR	297	10		35806
HPV33	E1	CSAGENTR	633	8		35807
HPV33	E1	CSAGENTRSLR	633	11		35808
HPV33	E1	CSKNRLTVA	276	9		35809
HPV33	E1	CSKNRLTVAK	276	10		35810
HPV33	E1	CTDWCITGY	226	9		35811
HPV33	E1	CTGWFEVEA	14	9		35812
HPV33	E1	CVISCVNSK	490	9		35813
HPV33	E1	CVISCVNSKSH	490	11		35814
HPV33	E1	CVNSKSHF	494	8		35815
HPV33	E1	DCGIMCRH	397	8		35816
HPV33	E1	DCGIMCRIY	397	9		35817
HPV33	E1	DCGIMCRHYK	397	10		35818
HPV33	E1	DCGIMCRHYKK	397	11		35819
HPV33	E1	DDLNAVCA	77	8		35820
HPV33	E1	DDLNAVCAK	77	10		35821
HPV33	E1	DDLNAVCAKLR	77	11		35822
HPV33	E1	DDSDIAYY	364	8		35823
HPV33	E1	DDSDIAYY	364	9		35824
HPV33	E1	DDSDIAYYA	364	10		35825
HPV33	E1	DDSGTDLLEF	41	10		35826
HPV33	E1	DDSMENSIQA	52	10		35827
HPV33	E1	DDVTPISWTY	515	10		35828
HPV33	E1	DGNEISIDVK	534	10		35829
HPV33	E1	DGNEISIDVKH	534	11		35830

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	DIAYYQAQLA	367	10		35831
HPV33	E1	DLIEEDK	614	8		35832
HPV33	E1	DLIEEDKENH	614	11		35833
HPV33	E1	DLNAVCAIK	78	9		35834
HPV33	E1	DLNAVCAIKR	78	10		35835
HPV33	E1	DLNAVCAIKRK	78	11		35836
HPV33	E1	DLSEMVQWA	349	9		35837
HPV33	E1	DLSEMVQWAY	349	10		35838
HPV33	E1	DSDIAYYY	365	8		35839
HPV33	E1	DSDIAYYYA	365	9		35840
HPV33	E1	DSGTDLEF	42	9		35841
HPV33	E1	DSMENSQA	53	9		35842
HPV33	E1	DSNSNAAA	377	8		35843
HPV33	E1	DSNSNAAAF	377	9		35844
HPV33	E1	DSNSNAAAFK	377	11		35845
HPV33	E1	DSRWPLYLI	566	8		35846
HPV33	E1	DSRWPLYHSR	566	10		35847
HPV33	E1	DTEAARALF	62	9		35848
HPV33	E1	DVKHRLVQLK	541	11		35849
HPV33	E1	DVTPISWTY	516	9		35850
HPV33	E1	DVVDRAANPCR	99	11		35851
HPV33	E1	ECTYRKRR	117	8		35852
HPV33	E1	EDDLNAVCA	76	9		35853
HPV33	E1	EDDLNAVCAIK	76	11		35854
HPV33	E1	EDVVDRAA	98	8		35855
HPV33	E1	EFKNPFF	580	8		35856
HPV33	E1	EFTAFLGA	445	8		35857
HPV33	E1	EFTAFLGAF	445	9		35858
HPV33	E1	EFTAFLGAFK	445	10		35859
HPV33	E1	EFTAFLGAFKK	445	11		35860
HPV33	E1	EGEDDLNA	74	8		35861
HPV33	E1	EGEDDLNAVCA	74	11		35862
HPV33	E1	EISIDVKII	537	8		35863
HPV33	E1	EISIDVKHR	537	9		35864
HPV33	E1	EISIDVKHRA	537	10		35865
HPV33	E1	ELTDDSDIA	361	9		35866
HPV33	E1	ELTDDSDIAY	361	10		35867
HPV33	E1	ELTDDSDIAYY	361	11		35868
HPV33	E1	ELVRPFKSDK	214	10		35869
HPV33	E1	ESLKVLIK	242	8		35870
HPV33	E1	ESLKVLIKQH	242	10		35871
HPV33	E1	ETCMVIEPPK	295	10		35872
HPV33	E1	EVEAVIER	19	8		35873
HPV33	E1	EVEAVIERR	19	9		35874
HPV33	E1	FAACQSQA	89	8		35875
HPV33	E1	FAACQSQA	89	9		35876

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	FDENGNPVY	587	9		35877
HPV33	E1	FDENGNPVYA	587	10		35878
HPV33	E1	FDLSEMVQWA	348	10		35879
HPV33	E1	FDLSEMVQWAY	348	11		35880
HPV33	E1	FFSRTWCK	605	8		35881
HPV33	E1	FGMSLIQF	479	8		35882
HPV33	E1	FGMSLIQFLK	479	10		35883
HPV33	E1	FLGAFKKF	449	8		35884
HPV33	E1	FLGAFKKFLK	449	10		35885
HPV33	E1	FLKGIPKK	456	8		35886
HPV33	E1	FLKSNSQA	385	8		35887
HPV33	E1	FLKSNSQAK	385	9	0.0013	35888
HPV33	E1	FMELVRPF	212	8		35889
HPV33	E1	FMELVRPFK	212	9		35890
HPV33	E1	FTAFLGAF	446	8		35891
HPV33	E1	FTAFLGAFK	446	9		35892
HPV33	E1	FTAFLGAFKK	446	10		35893
HPV33	E1	FTAFLGAFKKF	446	11		35894
HPV33	E1	GAFKKFLK	451	8		35895
HPV33	E1	GAGMGCTGWF	9	10		35896
HPV33	E1	GCTGWFEVEA	13	10		35897
HPV33	E1	GCVISCVNSK	489	10		35898
HPV33	E1	GGNISTFK	625	8		35899
HPV33	E1	GGNISTFKCSA	625	11		35900
HPV33	E1	GIILLIR	265	9		35901
HPV33	E1	GIILLIRF	265	10		35902
HPV33	E1	GIILLIRFR	265	11		35903
HPV33	E1	GIMCRHYK	399	8		35904
HPV33	E1	GIMCRHYKK	399	9		35905
HPV33	E1	GIMCRHYKKA	399	10		35906
HPV33	E1	GISFMELVR	209	9		35907
HPV33	E1	GISFMELVRPF	209	11		35908
HPV33	E1	GISPSVAESLK	235	11		35909
HPV33	E1	GMGCTGWF	11	8		35910
HPV33	E1	GMSLIQFLK	480	9		35911
HPV33	E1	GTDSRWPY	564	8		35912
HPV33	E1	GTDSRWPYLH	564	10		35913
HPV33	E1	GTTPEWIDR	327	9		35914
HPV33	E1	HFWLQPLSDA	500	10		35915
HPV33	E1	HFWLQPLSDAK	500	11		35916
HPV33	E1	HGGNISTF	624	8		35917
HPV33	E1	HGGNISTFK	624	9		35918
HPV33	E1	HLQCLTCDR	256	9		35919
HPV33	E1	HSFNDNIF	341	8		35920
HPV33	E1	HSRLTVFEF	573	9		35921
HPV33	E1	HSRLTVFEFK	573	10		35922

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	HSSNTKANILY	192	11		35923
HPV33	E1	IAYYQAQLA	368	9		35924
HPV33	E1	ICGPANTGK	468	9		35925
HPV33	E1	ICGPANTGKSY	468	11		35926
HPV33	E1	IDDSMENSIAQ	51	11		35927
HPV33	E1	IDDVTPISWTY	514	11		35928
HPV33	E1	IDDYMRNA	525	8		35929
HPV33	E1	IDEDSGY	125	9		35930
HPV33	E1	IDRLTVLQH	333	9		35931
HPV33	E1	IDRLTVLQHSF	333	11		35932
HPV33	E1	IFDLSEMVQWA	347	11		35933
HPV33	E1	IGQWIOSR	415	8		35934
HPV33	E1	IGQWIOSRCEK	415	11		35935
HPV33	E1	IILLIR	266	8		35936
HPV33	E1	IILLIRF	266	9		35937
HPV33	E1	IILLIRF	266	10		35938
HPV33	E1	IILLIRF	267	8		35939
HPV33	E1	IILLIRF	267	9		35940
HPV33	E1	IILLIRF	268	8		35941
HPV33	E1	IILLIRFRCSK	268	11		35942
HPV33	E1	ILYKFKEA	200	8		35943
HPV33	E1	ILYKFKEAY	200	9		35944
HPV33	E1	IMCRHYKK	400	8		35945
HPV33	E1	IMCRHYKKA	400	9		35946
HPV33	E1	IMCRHYKKAEEK	400	11		35947
HPV33	E1	ISCVNSKSH	492	9		35948
HPV33	E1	ISCVNSKSHF	492	10		35949
HPV33	E1	ISEDEDETA	32	9		35950
HPV33	E1	ISFMELVR	210	8		35951
HPV33	E1	ISFMELVRPF	210	10		35952
HPV33	E1	ISFMELVRPFK	210	11		35953
HPV33	E1	ISIDVKHR	538	8		35954
HPV33	E1	ISIDVKHRA	538	9		35955
HPV33	E1	ISNVLHSSNTK	187	11		35956
HPV33	E1	ISPSVAESLK	236	10		35957
HPV33	E1	ISTFKCSA	628	8		35958
HPV33	E1	ISWTYIDDY	520	9		35959
HPV33	E1	ISWTYIDDYMR	520	11		35960
HPV33	E1	ITGYGISPSVA	231	11		35961
HPV33	E1	IVKDCGIMCR	394	10		35962
HPV33	E1	IVKDCGIMCRH	394	11		35963
HPV33	E1	KANILYKF	197	8		35964
HPV33	E1	KANILYKFK	197	9		35965
HPV33	E1	KANILYKFKEA	197	11		35966
HPV33	E1	KCSAGENTR	632	9		35967
HPV33	E1	KDCGIMCR	396	8		35968

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	KDCGIMCRH	396	9		35969
HPV33	E1	KDCGIMCRHY	396	10		35970
HPV33	E1	KDCGIMCRHYK	396	11		35971
HPV33	E1	KFAACQSQA	88	9		35972
HPV33	E1	KFAACQSAA	88	10		35973
HPV33	E1	KFKEAYGISF	203	10		35974
HPV33	E1	KFLKGIPK	455	8		35975
HPV33	E1	KFLKGIPKK	455	9		35976
HPV33	E1	KGCVISCVNSK	488	11		35977
HPV33	E1	KIDEEDSGY	124	10		35978
HPV33	E1	KIVKDCGIMCR	393	11		35979
HPV33	E1	KLDLIEEDK	612	10		35980
HPV33	E1	KLRSQTCA	304	8		35981
HPV33	E1	KLRSQTCALY	304	10		35982
HPV33	E1	KMSIGQWQSR	412	11		35983
HPV33	E1	KSCMLICGPA	463	10		35984
HPV33	E1	KSFFSRTWCK	603	10		35985
HPV33	E1	KSNSQAKIVK	387	10		35986
HPV33	E1	KSYFGMSLIQF	476	11		35987
HPV33	E1	KTNDGGNWR	425	9		35988
HPV33	E1	KVLIKQHSLY	245	10		35989
HPV33	E1	LADSNNA	375	8		35990
HPV33	E1	LADSNNA	375	9		35991
HPV33	E1	LADSNNA	375	10		35992
HPV33	E1	LADSNNA	375	11		35993
HPV33	E1	LDGNEISIDVK	533	11		35994
HPV33	E1	LDLIEEDK	613	9		35995
HPV33	E1	LGAFKKFLK	450	9		35996
HPV33	E1	LICGPANTGK	467	10		35997
HPV33	E1	LIEEDKENH	615	10		35998
HPV33	E1	LIKQHSLY	247	8		35999
HPV33	E1	LIKQHSLYTH	247	10		36000
HPV33	E1	LIRFRCSK	271	8		36001
HPV33	E1	LIRFRCSKNR	271	10		36002
HPV33	E1	LLIRFRCSK	270	9		36003
HPV33	E1	LLIRFRCSKNR	270	11		36004
HPV33	E1	LLIRFRCSK	269	10		36005
HPV33	E1	LLLTNTNA	555	9		36006
HPV33	E1	LLRYQNIET	438	9		36007
HPV33	E1	LLRYQNIETFA	438	11		36008
HPV33	E1	LLTSNTNA	556	8		36009
HPV33	E1	LSEMVQWA	350	8		36010
HPV33	E1	LSEMVQWAY	350	9		36011
HPV33	E1	LTDDSDIA	362	8		36012
HPV33	E1	LTDDSDIAY	362	9		36013
HPV33	E1	LTDDSDIAYY	362	10		36014

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	LTDDSDIAYYY	362	11		36015
HPV33	E1	LTVFEKPNF	576	10		36016
HPV33	E1	LTVLQHSF	336	8		36017
HPV33	E1	LVRPFKSDK	215	9		36018
HPV33	E1	MADPEGTNGA	1	10		36019
HPV33	E1	MCRHYKKA	401	8		36020
HPV33	E1	MCRHYKKA EK	401	10		36021
HPV33	E1	MCRHYKKA EK R	401	11		36022
HPV33	E1	MGCTGWFEVEA	12	11		36023
HPV33	E1	MLICGPANTGK	466	11		36024
HPV33	E1	MSIGQWQSR	413	10		36025
HPV33	E1	MSLIQFLK	481	8		36026
HPV33	E1	MVIEPKLR	298	9		36027
HPV33	E1	NAGTDSRWPY	562	10		36028
HPV33	E1	NAVCAIKR	80	8		36029
HPV33	E1	NAVCAIKRK	80	9		36030
HPV33	E1	NAVCAIKRK F	80	10		36031
HPV33	E1	NAVCAIKRKFA	80	11		36032
HPV33	E1	NDENWKS F	598	8		36033
HPV33	E1	NDENWKSFF	598	9		36034
HPV33	E1	NDENWKSFFSR	598	11		36035
HPV33	E1	NGAGMGCTGW F	8	11		36036
HPV33	E1	NIEFTAF LGA	443	10		36037
HPV33	E1	NIEFTAF LGA F	443	11		36038
HPV33	E1	NILYKFKEA	199	9		36039
HPV33	E1	NILYKFKEAY	199	10		36040
HPV33	E1	NIQEGEDDLNA	71	11		36041
HPV33	E1	NISEDEDETA	31	10		36042
HPV33	E1	NISTFKCSA	627	9		36043
HPV33	E1	NSIQADTEA	57	9		36044
HPV33	E1	NSIQADTEAA	57	10		36045
HPV33	E1	NSIQADTEAAR	57	11		36046
HPV33	E1	NSNAAAF LK	379	9	0.0057	36047
HPV33	E1	NSQAKIVK	389	8		36048
HPV33	E1	NTKANILY	195	8		36049
HPV33	E1	NTKANILYK	195	9		36050
HPV33	E1	NTKANILYK F	195	10		36051
HPV33	E1	NTKANILYKFK	195	11		36052
HPV33	E1	NTNAGTDSR	560	9		36053
HPV33	E1	NVLHSSNTK	189	9		36054
HPV33	E1	NVLHSSNTKA	189	10		36055
HPV33	E1	PANTGKSY	471	8		36056
HPV33	E1	PANTGKSY F	471	9		36057
HPV33	E1	PCRTSINK	107	8		36058
HPV33	E1	PCRTSINKNK	107	10		36059
HPV33	E1	PFDENGNPVY	586	10		36060

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	PFDENGNPVYA	586	11		36061
HPV33	E1	PISWTYIDDY	519	10		36062
HPV33	E1	PIVQLLRY	434	8		36063
HPV33	E1	PLLLTSNTNA	554	10		36064
HPV33	E1	PSVAESLK	238	8		36065
HPV33	E1	PVYAINDENWK	593	11		36066
HPV33	E1	QADTEAAR	60	8		36067
HPV33	E1	QADTEAARA	60	9		36068
HPV33	E1	QADTEAARALF	60	11		36069
HPV33	E1	QGTTPIEWIDR	326	10		36070
HPV33	E1	QLADSNSNA	374	9		36071
HPV33	E1	QLADSNSNAA	374	10		36072
HPV33	E1	QLADSNSNAAA	374	11		36073
HPV33	E1	QLRYQNIEF	437	10		36074
HPV33	E1	QSAEDVVDR	94	10		36075
HPV33	E1	QSAEDVVDR	94	11		36076
HPV33	E1	QTCALYWF	308	8		36077
HPV33	E1	QTCALYWFR	308	9		36078
HPV33	E1	QTCALYWFR	308	11		36079
HPV33	E1	RCSKNRLTVA	275	10		36080
HPV33	E1	RCSKNRLTVAK	275	11		36081
HPV33	E1	REFCSKNR	273	8		36082
HPV33	E1	RGHILLIR	264	10		36083
HPV33	E1	RGHILLIR	264	11		36084
HPV33	E1	RLTVFEFK	575	8		36085
HPV33	E1	RLTVFEFKNPF	575	11		36086
HPV33	E1	RLTVLQHSF	335	9		36087
HPV33	E1	RSQTCALY	306	8		36088
HPV33	E1	RSQTCALYWF	306	10		36089
HPV33	E1	RSQTCALYWFR	306	11		36090
HPV33	E1	RTSINKNK	109	8		36091
HPV33	E1	SAAEDVVDR	95	9		36092
HPV33	E1	SAAEDVVDR	95	10		36093
HPV33	E1	SAAEDVVDR	95	11		36094
HPV33	E1	SAGENTRSLR	634	10		36095
HPV33	E1	SCMLICGPA	464	9		36096
HPV33	E1	SCDWCITGY	225	10		36097
HPV33	E1	SCVNSKSH	493	8		36098
HPV33	E1	SCVNSKSHF	493	9		36099
HPV33	E1	SDIAYYYA	366	8		36100
HPV33	E1	SDIAYYYAQLA	366	11		36101
HPV33	E1	SFFSRTWCK	604	9		36102
HPV33	E1	SFMELVRPF	211	9		36103
HPV33	E1	SFMELVRPFK	211	10		36104
HPV33	E1	SGTDLLLEF	43	8		36105
HPV33	E1	SIDVKIIRA	539	8		36106

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	SIGQWQSR	414	9		36107
HPV33	E1	SINKNKECTY	111	10		36108
HPV33	E1	SINKNKECTYR	111	11		36109
HPV33	E1	SIQADTEA	58	8		36110
HPV33	E1	SIQADTEAA	58	9		36111
HPV33	E1	SIQADTEAAR	58	10		36112
HPV33	E1	SIQADTEAARA	58	11		36113
HPV33	E1	SLKVLKQH	243	9		36114
HPV33	E1	SMENSIQA	54	8		36115
HPV33	E1	SSNTKANILY	193	10		36116
HPV33	E1	SSNTKANILYK	193	11		36117
HPV33	E1	SVAESLKVLIK	239	11		36118
HPV33	E1	TAFLGAPK	447	8		36119
HPV33	E1	TAFLGAPKK	447	9		36120
HPV33	E1	TAFLGAPKKF	447	10		36121
HPV33	E1	TCALYWFR	309	8		36122
HPV33	E1	TCALYWFRTA	309	10		36123
HPV33	E1	TCMVIEPPK	296	9		36124
HPV33	E1	TCMVIEPPKLR	296	11		36125
HPV33	E1	TDDSDIAY	363	8		36126
HPV33	E1	TDDSDIAYY	363	9		36127
HPV33	E1	TDDSDIAYYY	363	10		36128
HPV33	E1	TDDSDIAYYYA	363	11		36129
HPV33	E1	TDSRWPLYH	565	9		36130
HPV33	E1	TDSRWPLYHSR	565	11		36131
HPV33	E1	TDWCITGY	227	8		36132
HPV33	E1	TFKCSAGENTR	630	11		36133
HPV33	E1	TGWFEVEA	15	8		36134
HPV33	E1	TGYGISPSVA	232	10		36135
HPV33	E1	TLQEISNVLIH	183	10		36136
HPV33	E1	TSCDWCITGY	224	11		36137
HPV33	E1	TSINKNKECTY	110	11		36138
HPV33	E1	TSNTNAGTDSR	558	11		36139
HPV33	E1	TTPEWIDR	328	8		36140
HPV33	E1	TVFEFKNPF	577	9		36141
HPV33	E1	TVFEFKNPFPF	577	11		36142
HPV33	E1	VAESLKVLIK	240	10		36143
HPV33	E1	VCALKRKFF	82	8		36144
HPV33	E1	VCALKRKFA	82	9		36145
HPV33	E1	VCALKRKFAA	82	10		36146
HPV33	E1	VDRAANPCR	101	9		36147
HPV33	E1	VFEFKNPF	578	8		36148
HPV33	E1	VFEFKNPFPF	578	10		36149
HPV33	E1	VIPEPKLR	299	8		36150
HPV33	E1	VISCVNSK	491	8		36151
HPV33	E1	VISCVNSKSH	491	10		36152

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E1	VISCVNSKSHF	491	11		36153
HPV33	E1	VLHSSNTK	190	8		36154
HPV33	E1	VLHSSNTKA	190	9		36155
HPV33	E1	VLIKQHSLSY	246	9		36156
HPV33	E1	VLIKQHSLSLYTH	246	11		36157
HPV33	E1	VLQHSFNDNIF	338	11		36158
HPV33	E1	VTLQHSINVLH	182	11		36159
HPV33	E1	VTPISWTY	517	8		36160
HPV33	E1	VVDRAANPCR	100	10		36161
HPV33	E1	WFEVEAVIER	17	10		36162
HPV33	E1	WFEVEAVIERR	17	11		36163
HPV33	E1	WIDRLTVLQH	332	10		36164
HPV33	E1	WIOSRCEK	418	8		36165
HPV33	E1	WLQPLSDA	502	8		36166
HPV33	E1	WLQPLSDAK	502	9		36167
HPV33	E1	WTYIDDYMR	522	9		36168
HPV33	E1	WTYIDDYMRNA	522	11		36169
HPV33	E1	YANDENWK	595	9		36170
HPV33	E1	YANDENWKSF	595	11		36171
HPV33	E1	YAQLADSNNA	372	11		36172
HPV33	E1	YFGMSLIQF	478	9		36173
HPV33	E1	YFGMSLIQFLK	478	11		36174
HPV33	E1	YGISFMELVR	208	10		36175
HPV33	E1	YGISPSVA	234	8		36176
HPV33	E1	YIDDMRNA	524	9		36177
HPV33	E1	YLHSRLTVF	571	9		36178
HPV33	E1	YLHSRLTVFEF	571	11		36179
HPV33	E1	YTHLQCLTCDR	254	11		36180
HPV33	E2	AAKRRRPA	223	9		36181
HPV33	E2	AAKRRRPA	224	8		36182
HPV33	E2	ADIQTDNDNR	210	10		36183
HPV33	E2	ADPALDNR	246	8		36184
HPV33	E2	ADPALDNRTA	246	10		36185
HPV33	E2	ADPALDNRRTAR	246	11		36186
HPV33	E2	AFOVIELOMA	69	10		36187
HPV33	E2	ALDNRRTAR	249	8		36188
HPV33	E2	ALDNRRTARTA	249	10		36189
HPV33	E2	ALETLSKSQY	78	10		36190
HPV33	E2	ALLYTAKQMGF	41	11		36191
HPV33	E2	ATNCTNKQR	258	9		36192
HPV33	E2	AVQEKILDLY	10	10		36193
HPV33	E2	CADPALDNR	245	9		36194
HPV33	E2	CADPALDNRRTA	245	11		36195
HPV33	E2	CALLYTAK	40	8		36196
HPV33	E2	CLRYRLKPY	288	9		36197
HPV33	E2	CLRYRLKPYK	288	10		36198

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E2	CSSNVAPIVH	269	10		36199
HPV33	E2	CTMVTGKVDY	145	10		36200
HPV33	E2	DIOTDNDNR	211	9		36201
HPV33	E2	DLPSQIEH	25	8		36202
HPV33	E2	DLPSQIEHWK	25	10		36203
HPV33	E2	DTAQPLTK	235	8		36204
HPV33	E2	DTAQPLTKLF	235	10		36205
HPV33	E2	DTCTMTGK	143	9		36206
HPV33	E2	DTTDTAQPLTK	232	11		36207
HPV33	E2	ECALLYTA	39	8		36208
HPV33	E2	ECALLYTAK	39	9		36209
HPV33	E2	EDAAKYSK	173	8		36210
HPV33	E2	EDTCTMTGK	142	10		36211
HPV33	E2	EISARLNA	3	8		36212
HPV33	E2	ELQMALETLSK	74	11		36213
HPV33	E2	ELYSSMSSTWH	298	11		36214
HPV33	E2	ESNSLKCLR	282	9		36215
HPV33	E2	ESNSLKCLRY	282	10		36216
HPV33	E2	ESNSLKCLRYR	282	11		36217
HPV33	E2	ETLSKSQY	80	8		36218
HPV33	E2	ETVTVOYDNDK	115	11		36219
HPV33	E2	EVWLCEPPK	100	9		36220
HPV33	E2	EVWLCEPPKCF	100	11		36221
HPV33	E2	FCADPALDNR	244	10		36222
HPV33	E2	FVTEQQQMF	325	10		36223
HPV33	E2	GMYYIHNEK	156	10		36224
HPV33	E2	HLKGESNLK	278	10		36225
HPV33	E2	IGMYIHNCEK	155	11		36226
HPV33	E2	ILDLYEADK	15	9		36227
HPV33	E2	ISARLNAVQEK	4	11		36228
HPV33	E2	KAFQVIELQMA	68	11		36229
HPV33	E2	KCLRYRLK	287	8		36230
HPV33	E2	KCLRYRLKPY	287	10		36231
HPV33	E2	KCLRYRLKPYK	287	11		36232
HPV33	E2	KGESNLK	280	8		36233
HPV33	E2	KGESNLKCLR	280	11		36234
HPV33	E2	KILDLYEA	14	8		36235
HPV33	E2	KILDLYEADK	14	10		36236
HPV33	E2	KLFCADPA	242	8		36237
HPV33	E2	KLIRMECA	34	8		36238
HPV33	E2	KLIRMECALLY	34	11		36239
HPV33	E2	KTDLSQIEH	23	10		36240
HPV33	E2	KTMWVEVH	180	8		36241
HPV33	E2	KVDYIGMY	151	8		36242
HPV33	E2	KVDYIGMY	151	9		36243
HPV33	E2	KVDYIGMYI	151	11		36244

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E2	KVYFKYFK	165	8		36245
HPV33	E2	KVYFKYFKEDA	165	11		36246
HPV33	E2	LASKTKAF	63	8		36247
HPV33	E2	LCEPPKCF	103	8		36248
HPV33	E2	LCEPPKCFK	103	9		36249
HPV33	E2	LCEPPKCFKK	103	10		36250
HPV33	E2	LCHQVVPsLLA	54	11		36251
HPV33	E2	LDLYEADK	16	8		36252
HPV33	E2	LDNRTARTA	250	9		36253
HPV33	E2	LFCADPALDNR	243	11		36254
HPV33	E2	LIRMECALLY	35	10		36255
HPV33	E2	LLASKTKA	62	8		36256
HPV33	E2	LLASKTKAF	62	9		36257
HPV33	E2	LLYTAKQMGF	42	10		36258
HPV33	E2	LTKLFCADPA	240	10		36259
HPV33	E2	MAETLSK	77	8		36260
HPV33	E2	MAETLSKSQY	77	11		36261
HPV33	E2	MDYTNWGEIY	129	10		36262
HPV33	E2	MGFSLCH	49	8		36263
HPV33	E2	MVTGKVDY	147	8		36264
HPV33	E2	NAVQEKILDLY	9	11		36265
HPV33	E2	NCEKVYFK	162	8		36266
HPV33	E2	NCEKVYFKY	162	9		36267
HPV33	E2	NCEKVYFKYF	162	10		36268
HPV33	E2	NCEKVYFKYFK	162	11		36269
HPV33	E2	NDKKNTMDY	123	9		36270
HPV33	E2	NDNRPPQA	216	8		36271
HPV33	E2	NDNRPPQAA	216	9		36272
HPV33	E2	NDNRPPQAAA	216	10		36273
HPV33	E2	NDNRPPQAAAK	216	11		36274
HPV33	E2	NGIVTVTF	318	8		36275
HPV33	E2	NSKNGIVTVTF	315	11		36276
HPV33	E2	NSLKCLRY	284	8		36277
HPV33	E2	NSLKCLRYR	284	9		36278
HPV33	E2	NSLKCLRYRLK	284	11		36279
HPV33	E2	NVAPIVHLK	272	9		36280
HPV33	E2	PADTTDTA	230	8		36281
HPV33	E2	PALDNRTA	248	8		36282
HPV33	E2	PALDNRTAR	248	9		36283
HPV33	E2	PALDNRTARTA	248	11		36284
HPV33	E2	PLTKLFCA	239	8		36285
HPV33	E2	PLTKLFCADPA	239	11		36286
HPV33	E2	PSLLASKTK	60	9		36287
HPV33	E2	PSLLASKTKA	60	10		36288
HPV33	E2	PSLLASKTKAF	60	11		36289
HPV33	E2	PSQIEIWK	27	8		36290

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E2	PSQIEHWKLIIR	27	11		36291
HPV33	E2	PTVQISTGF	342	9		36292
HPV33	E2	QAAAKRRR	222	8		36293
HPV33	E2	QAAAKRRRPA	222	10		36294
HPV33	E2	QGETVTVOY	113	9		36295
HPV33	E2	QIEHWKLIIR	29	9		36296
HPV33	E2	QISTTETA	203	8		36297
HPV33	E2	QMALETLSK	76	9		36298
HPV33	E2	QMFLGTVK	332	8		36299
HPV33	E2	QMGFSLCH	48	9		36300
HPV33	E2	QTDNDNRPPQA	213	11		36301
HPV33	E2	QVIELQMA	71	8		36302
HPV33	E2	QVVPSSLA	57	8		36303
HPV33	E2	QVVPSSLASK	57	10		36304
HPV33	E2	RLKPYKELY	292	9		36305
HPV33	E2	RLNAVQEK	7	8		36306
HPV33	E2	RMECALLY	37	8		36307
HPV33	E2	RMECALLYTA	37	10		36308
HPV33	E2	RMECALLYTAK	37	11		36309
HPV33	E2	RTATNCTNK	256	9		36310
HPV33	E2	RTATNCTNKQR	256	11		36311
HPV33	E2	RTVCSSNA	266	9		36312
HPV33	E2	SARLNAVQEK	5	10		36313
HPV33	E2	SLEVWLCEPPK	98	11		36314
HPV33	E2	SLKCLRYR	285	8		36315
HPV33	E2	SLKCLRYRLK	285	10		36316
HPV33	E2	SLASKTK	61	8		36317
HPV33	E2	SLASKTKA	61	9		36318
HPV33	E2	SLASKTKAF	61	10		36319
HPV33	E2	SSMSSTWH	301	8		36320
HPV33	E2	SSNQISTTETA	200	11		36321
HPV33	E2	SSNVAPIVH	270	9		36322
HPV33	E2	SSNVAPIVHLK	270	11		36323
HPV33	E2	SSTWHWTSDNK	304	11		36324
HPV33	E2	STWHWTSDNK	305	10		36325
HPV33	E2	TADIQTNDNR	209	11		36326
HPV33	E2	TAKQMGFSH	45	9		36327
HPV33	E2	TAQPLTKLF	236	9		36328
HPV33	E2	TAQPLTKLFCA	236	11		36329
HPV33	E2	TARTATNCTNK	254	11		36330
HPV33	E2	TATNCTNK	257	8		36331
HPV33	E2	TATNCTNKQR	257	10		36332
HPV33	E2	TCTMVTGK	144	8		36333
HPV33	E2	TCTMVTGKVDY	144	11		36334
HPV33	E2	TDLP SQIEH	24	9		36335
HPV33	E2	TDLP SQIEHWK	24	11		36336

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E2	TDNDNRPPQA	214	10		36337
HPV33	E2	TDNDNRPPQAA	214	11		36338
HPV33	E2	TDTAQPLTK	234	9		36339
HPV33	E2	TDTAQPLTKLF	234	11		36340
HPV33	E2	TFVTEQQQMF	324	11		36341
HPV33	E2	TGKVDYIGMY	149	10		36342
HPV33	E2	TGKVDYIGMY	149	11		36343
HPV33	E2	TMDYTNWGEIY	128	11		36344
HPV33	E2	TMVTGKVDY	146	9		36345
HPV33	E2	TSDNKNK	310	8		36346
HPV33	E2	TTDTAQPLTK	233	10		36347
HPV33	E2	TVCSNVA	267	8		36348
HPV33	E2	TVQISTGF	343	8		36349
HPV33	E2	TVQYDNDK	118	8		36350
HPV33	E2	TVQYDNDKK	118	9		36351
HPV33	E2	TVTVQYDNDK	116	10		36352
HPV33	E2	TVTVQYDNDKK	116	11		36353
HPV33	E2	VAPIVHLK	273	8		36354
HPV33	E2	VCSSNVAPIVH	268	11		36355
HPV33	E2	VDYIGMY	152	8		36356
HPV33	E2	VDYIGMYIYH	152	10		36357
HPV33	E2	VTEQQQMF	326	9		36358
HPV33	E2	VTGKVDYIGMY	148	11		36359
HPV33	E2	VTQYDNDK	117	9		36360
HPV33	E2	VTQYDNDKK	117	10		36361
HPV33	E2	VVPSLLASK	58	9		36362
HPV33	E2	VVPSLLASKTK	58	11		36363
HPV33	E2	WLCEPPKCF	102	9		36364
HPV33	E2	WLCEPPKCFK	102	10		36365
HPV33	E2	WLCEPPKCFKK	102	11		36366
HPV33	E2	WTSNKNKSK	309	9		36367
HPV33	E2	YDNDKKNTMDY	121	11		36368
HPV33	E2	YFKEDAAK	170	8		36369
HPV33	E2	YFKEDAAKY	170	9		36370
HPV33	E2	YFKEDAAKYSK	170	11		36371
HPV33	E2	YFKYFKEDA	167	9		36372
HPV33	E2	YFKYFKEDAA	167	10		36373
HPV33	E2	YFKYFKEDAAK	167	11		36374
HPV33	E2	YIGMYIYH	154	8		36375
HPV33	E2	YIHNCVKY	159	9		36376
HPV33	E2	YIHNCVKYF	159	10		36377
HPV33	E2	YIHNCVKYVFK	159	11		36378
HPV33	E2	YSKTQMWEEV	178	10		36379
HPV33	E2	YSSMSSTWI	300	9		36380
HPV33	E2	YTAKQMGF	44	8		36381
HPV33	E2	YTAKQMGFSH	44	10		36382

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E2	YTNWGEIY	131	8		36383
HPV33	E5	CINFHAQH	63	8		36384
HPV33	E5	FCYLLFLY	51	8		36385
HPV33	E5	FFCYLLFLY	50	9		36386
HPV33	E5	FLCLSLLR	12	9		36387
HPV33	E5	FLYLPMMCINF	56	11		36388
HPV33	E5	FVFLCFILF	3	10		36389
HPV33	E5	FVGSPLKIF	42	9		36390
HPV33	E5	FVGSPLKIFF	42	10		36391
HPV33	E5	FVLCFILF	5	8		36392
HPV33	E5	GSPLKIFF	44	8		36393
HPV33	E5	GSPLKIFFCY	44	10		36394
HPV33	E5	IFFCYLLF	49	8		36395
HPV33	E5	IFFCYLLFLY	49	10		36396
HPV33	E5	IFVFVLCF	2	8		36397
HPV33	E5	IFVFVLCFILF	2	11		36398
HPV33	E5	ILFLCLSLLR	10	11		36399
HPV33	E5	ILSISTYA	23	8		36400
HPV33	E5	KIFFCYLLF	48	9		36401
HPV33	E5	KIFFCYLLFLY	48	11		36402
HPV33	E5	LCLSLLR	13	8		36403
HPV33	E5	LFLCLSLLR	11	10		36404
HPV33	E5	LILSISTY	22	8		36405
HPV33	E5	LILSISTYA	22	9		36406
HPV33	E5	LLVLVLLWVF	32	11		36407
HPV33	E5	LLWVFGSPK	38	11		36408
HPV33	E5	LVLLWVF	35	8		36409
HPV33	E5	LVVLVLLWVF	33	10		36410
HPV33	E5	MCINFHAQH	62	9		36411
HPV33	E5	MIFVFVLCF	1	9		36412
HPV33	E5	MMCINFHA	61	8		36413
HPV33	E5	MMCINFHAQH	61	10		36414
HPV33	E5	PLILSISTY	21	9		36415
HPV33	E5	PLILSISTYA	21	10		36416
HPV33	E5	PLKIFFCY	46	8		36417
HPV33	E5	PLKIFFCYLLF	46	11		36418
HPV33	E5	PMMCINFH	60	8		36419
HPV33	E5	PMMCINFHA	60	9		36420
HPV33	E5	PMMCINFHAQH	60	11		36421
HPV33	E5	VFVGSPLK	41	8		36422
HPV33	E5	VFVGSPLKIF	41	10		36423
HPV33	E5	VFVGSPLKIFF	41	11		36424
HPV33	E5	VFVLCFILF	4	9		36425
HPV33	E5	VGSPLKIF	43	8		36426
HPV33	E5	VGSPLKIFF	43	9		36427
HPV33	E5	VGSPLKIFFCY	43	11		36428

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E5	VLVLLWVF	34	9		36429
HPV33	E5	WVFVGSPLK	40	9		36430
HPV33	E5	WVFVGSPLKIF	40	11		36431
HPV33	E5	YLPMMCINF	58	9		36432
HPV33	E5	YLPMMCINFH	58	10		36433
HPV33	E5	YLPMMCINFHA	58	11		36434
HPV33	E6	AACWRSRR	137	8		36435
HPV33	E6	AACWRSRRR	137	9		36436
HPV33	E6	ACWRSRRR	138	8		36437
HPV33	E6	ACWRSRRRRETA	138	11		36438
HPV33	E6	ADLTVVYR	48	8		36439
HPV33	E6	AFADLTVVY	46	9		36440
HPV33	E6	AFADLTVVYR	46	10		36441
HPV33	E6	AGRCAACWR	133	9		36442
HPV33	E6	AGRCAACWRSR	133	11		36443
HPV33	E6	CAACWRSR	136	8		36444
HPV33	E6	CAACWRSRR	136	9		36445
HPV33	E6	CAACWRSRRR	136	10		36446
HPV33	E6	CLRFLSKISEY	66	11		36447
HPV33	E6	CVECKKPLQR	30	10		36448
HPV33	E6	DFAFADLTVVY	44	11		36449
HPV33	E6	DLCQALETTH	14	11		36450
HPV33	E6	DTEEKPRTLH	4	10		36451
HPV33	E6	ECKKPLQR	32	8		36452
HPV33	E6	EGNPFGLCK	56	9		36453
HPV33	E6	EILRCIIQQR	98	11		36454
HPV33	E6	ELQCVECK	27	8		36455
HPV33	E6	ELQCVECKK	27	9		36456
HPV33	E6	EVYDFAF	41	8		36457
HPV33	E6	FADLTVVY	47	8		36458
HPV33	E6	FADLTVVYR	47	9		36459
HPV33	E6	FAFADLTVVY	45	10		36460
HPV33	E6	FAFADLTVVYR	45	11		36461
HPV33	E6	FGICKLCLR	60	9		36462
HPV33	E6	FGICKLCLRF	60	10		36463
HPV33	E6	FLSKISEY	69	8		36464
HPV33	E6	FLSKISEYR	69	9		36465
HPV33	E6	FLSKISEYRH	69	10		36466
HPV33	E6	FLSKISEYRHY	69	11		36467
HPV33	E6	GICKLCLR	61	8		36468
HPV33	E6	GICKLCLRF	61	9		36469
HPV33	E6	HVDLNKRF	118	8		36470
HPV33	E6	HVDLNKRFH	118	9		36471
HPV33	E6	ICKLCLRF	62	8		36472
HPV33	E6	ICKLCLRFLSK	62	11		36473
HPV33	E6	ICQRPLCPQEK	105	11		36474

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E6	ILIRCICQR	99	10		36475
HPV33	E6	ISEYRHYNY	73	9		36476
HPV33	E6	ISGRWAGR	128	8		36477
HPV33	E6	ISGRWAGRCA	128	10		36478
HPV33	E6	ISGRWAGRCAA	128	11		36479
HPV33	E6	KISEYRHY	72	8		36480
HPV33	E6	KISEYRHYNY	72	10		36481
HPV33	E6	KLCRLFLSK	64	9		36482
HPV33	E6	LCLRLFLSK	65	8		36483
HPV33	E6	LCPEKKR	110	8		36484
HPV33	E6	LCPEKKRH	110	9		36485
HPV33	E6	LCOALETTH	15	10		36486
HPV33	E6	LIRCHICQR	100	9		36487
HPV33	E6	LSKISEYR	70	8		36488
HPV33	E6	LSKISEYRH	70	9		36489
HPV33	E6	LSKISEYRHY	70	10		36490
HPV33	E6	LTVVYREGNPF	50	11		36491
HPV33	E6	MFQDTEEK	1	8		36492
HPV33	E6	MFQDTEEKPR	1	10		36493
HPV33	E6	NIELQCVECK	25	10		36494
HPV33	E6	NIELQCVECKK	25	11		36495
HPV33	E6	NISGRWAGR	127	9		36496
HPV33	E6	NISGRWAGRCA	127	11		36497
HPV33	E6	NTLEQTVK	86	8		36498
HPV33	E6	NTLEQTVKK	86	9		36499
HPV33	E6	PFGICKLCLR	59	10		36500
HPV33	E6	PFGICKLCLRF	59	11		36501
HPV33	E6	PLCPQEKK	109	8		36502
HPV33	E6	PLCPQEKKR	109	9		36503
HPV33	E6	PLCPQEKKRH	109	10		36504
HPV33	E6	PLNEILR	95	8		36505
HPV33	E6	PLQRSEVY	36	8		36506
HPV33	E6	PLQRSEVYDF	36	10		36507
HPV33	E6	PLQRSEVYDFA	36	11		36508
HPV33	E6	QALETTH	17	8		36509
HPV33	E6	QCVECKKPLQR	29	11		36510
HPV33	E6	QDTEEKPR	3	8		36511
HPV33	E6	QDTEEKPTLH	3	11		36512
HPV33	E6	RCAACWRSR	135	9		36513
HPV33	E6	RCAACWRSRR	135	10		36514
HPV33	E6	RCAACWRSRRR	135	11		36515
HPV33	E6	RFHNSGR	124	8		36516
HPV33	E6	RFHNSGRWA	124	10		36517
HPV33	E6	RFLSKISEY	68	9		36518
HPV33	E6	RFLSKISEYR	68	10		36519
HPV33	E6	RFLSKISEYRH	68	11		36520

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E6	RSEVYDFA	39	8		36521
HPV33	E6	RSEVYDFAF	39	9		36522
HPV33	E6	RSEVYDFAFA	39	10		36523
HPV33	E6	RSRRRETA	141	8		36524
HPV33	E6	RTLHDLCCA	10	9		36525
HPV33	E6	SGRWAGRCA	129	9		36526
HPV33	E6	SGRWAGRCAA	129	10		36527
HPV33	E6	TLEQTVKK	87	8		36528
HPV33	E6	TLHDLCCA	11	8		36529
HPV33	E6	TVVYREGNPF	51	10		36530
HPV33	E6	VDLNRKRFH	119	8		36531
HPV33	E6	VVYREGNPF	52	9		36532
HPV33	E6	WAGRCAACWR	132	10		36533
HPV33	E6	YGNLTLEQTVK	84	10		36534
HPV33	E6	YGNLTLEQTVKK	84	11		36535
HPV33	E7	ADYIVITCCH	50	10		36536
HPV33	E7	CCHTCNTTVR	57	10		36537
HPV33	E7	CVNSTASDLR	68	10		36538
HPV33	E7	DGQAQAPATA	42	9		36539
HPV33	E7	DGQAQAPATADY	42	11		36540
HPV33	E7	DLYPEPTDLY	14	10		36541
HPV33	E7	DSSDEDEGLDR	30	11		36542
HPV33	E7	EGLDRPDGQA	36	10		36543
HPV33	E7	GLDRPDGQA	37	9		36544
HPV33	E7	GTVNVICPTCA	85	11		36545
HPV33	E7	HTCNTTVR	59	8		36546
HPV33	E7	LCVNSTASDLR	67	11		36547
HPV33	E7	LDLYPEPTDLY	13	11		36548
HPV33	E7	LDRPDGQA	38	8		36549
HPV33	E7	LDRPDGQAQPA	38	11		36550
HPV33	E7	NIVCPTCA	88	8		36551
HPV33	E7	NSTASDLR	70	8		36552
HPV33	E7	PDGQAQPA	41	8		36553
HPV33	E7	PDGQAQAPATA	41	10		36554
HPV33	E7	PTLKEYVLDLY	6	11		36555
HPV33	E7	QAQAPATADY	44	9		36556
HPV33	E7	QAQAPATADYY	44	10		36557
HPV33	E7	RGHKPTLK	2	8		36558
HPV33	E7	RGHKPTLKEY	2	10		36559
HPV33	E7	RLCVNSTA	66	8		36560
HPV33	E7	SDEDEGLDR	32	9		36561
HPV33	E7	SSDEDEGLDR	31	10		36562
HPV33	E7	TADYVIVTCCIH	49	11		36563
HPV33	E7	TCHTCNTTVR	56	11		36564
HPV33	E7	TLKEYVLDLY	7	10		36565
HPV33	E7	TTVRLCVNSTA	63	11		36566

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	E7	TVNIVCPTCA	86	10		36567
HPV33	E7	TVRLCVNSTA	64	10		36568
HPV33	L1	AAPTSTRTSSA	482	11		36569
HPV33	L1	ACTNAAPA	175	8		36570
HPV33	L1	ACVGLEIGR	102	9		36571
HPV33	L1	ADLDQFPLGR	456	10		36572
HPV33	L1	ADLDQFPLGRK	456	11		36573
HPV33	L1	ADNRECLSM DY	142	11		36574
HPV33	L1	AGLKAKPK	471	8		36575
HPV33	L1	AGLKAKPKLK	471	10		36576
HPV33	L1	AGLKAKPKLKR	471	11		36577
HPV33	L1	AGSSRLLA	37	8		36578
HPV33	L1	AGSSRLLA VGH	37	11		36579
HPV33	L1	AITCQKTVPPK	424	11		36580
HPV33	L1	ASIQSSAF	284	8		36581
HPV33	L1	ASIQSSAF	284	9		36582
HPV33	L1	ASLQDTYR	411	8		36583
HPV33	L1	ASLQDTYRF	411	9		36584
HPV33	L1	AVGHPYFSIK	44	10		36585
HPV33	L1	AVPDDLYIK	270	9		36586
HPV33	L1	CGSTCKYPDY	225	10		36587
HPV33	L1	CMDFKTLQA	207	9		36588
HPV33	L1	CMDFKTLQANK	207	11		36589
HPV33	L1	CTQVTS DSTY	345	10		36590
HPV33	L1	CTQVTS DSTYK	345	11		36591
HPV33	L1	CVGLEIGR	103	8		36592
HPV33	L1	DDTETGNK	128	8		36593
HPV33	L1	DDTETGNKY	128	9		36594
HPV33	L1	DFKTLQANK	209	9		36595
HPV33	L1	DGDMVD TGF	197	9		36596
HPV33	L1	DICGSTCK	223	8		36597
HPV33	L1	DICGSTCKY	223	9		36598
HPV33	L1	DILEDWQF	396	8		36599
HPV33	L1	DL DQFPLGR	457	9		36600
HPV33	L1	DL DQFPLGRK	457	10		36601
HPV33	L1	DL DQFPLGRKF	457	11		36602
HPV33	L1	DLKEKFS A	449	8		36603
HPV33	L1	DLQVFQLCK	370	10		36604
HPV33	L1	DLYIKGSGTTA	274	11		36605
HPV33	L1	DSLFFFLR	244	8		36606
HPV33	L1	DSLFFFLRR	244	9		36607
HPV33	L1	DSTYKNENF	351	9		36608
HPV33	L1	DSTYKNENFK	351	10		36609
HPV33	L1	DTETGNKY	129	8		36610
HPV33	L1	DTGFGCMDF	202	9		36611
HPV33	L1	DTGFGCMDFK	202	10		36612

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	DTQRLVWA	95	8		36613
HPV33	L1	DTSFYNPDTQR	88	11		36614
HPV33	L1	DTYRFVTSQA	415	10		36615
HPV33	L1	EAVPDDL	269	8		36616
HPV33	L1	EAVPDDL	269	10		36617
HPV33	L1	ECLSM	146	8		36618
HPV33	L1	EDGDMVDTGF	196	10		36619
HPV33	L1	EDPLGKYTF	437	9		36620
HPV33	L1	ESQLFNKPY	303	9		36621
HPV33	L1	EVDLKEKF	447	8		36622
HPV33	L1	EVDLKEKFSA	447	10		36623
HPV33	L1	EVMYIHA	385	8		36624
HPV33	L1	FDDTETGNK	127	9		36625
HPV33	L1	FDDTETGNKY	127	10		36626
HPV33	L1	FFFLRREQMF	247	10		36627
HPV33	L1	FFLRREQMF	248	9		36628
HPV33	L1	FFLRREQMFVR	248	11		36629
HPV33	L1	FFNRAGTLGEA	260	11		36630
HPV33	L1	FGCMDEKTLQA	205	11		36631
HPV33	L1	FGPDTSF	84	8		36632
HPV33	L1	FGPDTSFY	84	9		36633
HPV33	L1	FGLTPPPSA	403	9		36634
HPV33	L1	FLLQAGLK	467	8		36635
HPV33	L1	FLLQAGLKA	467	9		36636
HPV33	L1	FLLQAGLKAK	467	10		36637
HPV33	L1	FLRREQMF	249	8		36638
HPV33	L1	FLRREQMFVR	249	10		36639
HPV33	L1	FLRREQMFVRH	249	11		36640
HPV33	L1	FSADLDQF	454	8		36641
HPV33	L1	FSIKNPTNA	50	9		36642
HPV33	L1	FSIKNPTNAK	50	10		36643
HPV33	L1	FSIKNPTNAKK	50	11		36644
HPV33	L1	FVRHFFNR	256	8		36645
HPV33	L1	FVRHFFNRA	256	9		36646
HPV33	L1	FVTSQAITCQK	419	11		36647
HPV33	L1	FVTVDITR	330	9		36648
HPV33	L1	GCKPPTGEH	161	9		36649
HPV33	L1	GCMDFKTLQA	206	10		36650
HPV33	L1	GDMVDTGF	198	8		36651
HPV33	L1	GDSLFFFLR	243	9		36652
HPV33	L1	GDSLFFFLRR	243	10		36653
HPV33	L1	GFGCMDFK	204	8		36654
HPV33	L1	GFPDTSFY	85	8		36655
HPV33	L1	GICWGNQVF	322	9		36656
HPV33	L1	GISGIPLLNK	117	10		36657
HPV33	L1	GISGIPLLNKF	117	11		36658

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	GLKAKPKLK	472	9		36659
HPV33	L1	GLKAKPKLKR	472	10		36660
HPV33	L1	GLKAKPKLKRA	472	11		36661
HPV33	L1	GLQYRVFR	68	8		36662
HPV33	L1	GLQYRVFRVR	68	10		36663
HPV33	L1	GLTPPSA	404	8		36664
HPV33	L1	GSMVTESQLF	297	11		36665
HPV33	L1	GSSRLAVGH	38	10		36666
HPV33	L1	GSTCKYPDY	226	9		36667
HPV33	L1	GSTCKYPDYLK	226	11		36668
HPV33	L1	GTTASIQSSA	281	10		36669
HPV33	L1	GTTASIQSSAF	281	11		36670
HPV33	L1	GVACTNAA	173	8		36671
HPV33	L1	GVACTNAAPA	173	10		36672
HPV33	L1	HVEEYDLQF	365	9		36673
HPV33	L1	HVEEYDLQFVF	365	11		36674
HPV33	L1	ICGSTCKY	224	8		36675
HPV33	L1	ICGSTCKYPDY	224	11		36676
HPV33	L1	ICWGNQVF	323	8		36677
HPV33	L1	IDICGSTCK	222	9		36678
HPV33	L1	IDICGSTCKY	222	10		36679
HPV33	L1	ISGHPLLNK	118	9		36680
HPV33	L1	ISGHPLLNKF	118	10		36681
HPV33	L1	ITCQKIVPPK	425	10		36682
HPV33	L1	KAKPKLKR	474	8		36683
HPV33	L1	KAKPKLKRA	474	9		36684
HPV33	L1	KAKPKLKRAA	474	10		36685
HPV33	L1	KFDDTETGNK	126	10		36686
HPV33	L1	KFDDTETGNKY	126	11		36687
HPV33	L1	KFGFPDTSF	83	9		36688
HPV33	L1	KFGFPDTSFY	83	10		36689
HPV33	L1	KFLQAGLK	466	9		36690
HPV33	L1	KFLQAGLKA	466	10		36691
HPV33	L1	KFLQAGLKAK	466	11		36692
HPV33	L1	KFSADLDQF	453	9		36693
HPV33	L1	KGVACTNA	172	8		36694
HPV33	L1	KGVACTNAA	172	9		36695
HPV33	L1	KGVACTNAAPA	172	11		36696
HPV33	L1	KLKRAAPTSTR	478	11		36697
HPV33	L1	KTVPPKEK	429	8		36698
HPV33	L1	KVSGLOYR	65	8		36699
HPV33	L1	KVSGLOYRVF	65	10		36700
HPV33	L1	KVSGLOYRVFR	65	11		36701
HPV33	L1	KVTLTAEVMTY	379	11		36702
HPV33	L1	KVVSTDEY	20	8		36703
HPV33	L1	KVVSTDEYVSR	20	11		36704

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	LAVGIPIYF	43	8		36705
HPV33	L1	LAVGHPYFSIK	43	11		36706
HPV33	L1	LCKVILTA	377	8		36707
HPV33	L1	LCTQVTSdsty	344	11		36708
HPV33	L1	LDQFPLGR	458	8		36709
HPV33	L1	LDQFPLGRK	458	9		36710
HPV33	L1	LDQFPLGRKF	458	10		36711
HPV33	L1	LFFFLRREQMF	246	11		36712
HPV33	L1	LFNKPYWLQR	306	10		36713
HPV33	L1	LFNKPYWLQRA	306	11		36714
HPV33	L1	LGCKPTGEH	160	10		36715
HPV33	L1	LGEAVPDDL	267	10		36716
HPV33	L1	LGRKFLQA	463	9		36717
HPV33	L1	LGVGISGH	114	8		36718
HPV33	L1	LLAVGHPY	42	8		36719
HPV33	L1	LLAVGHPYF	42	9		36720
HPV33	L1	LLGCKPPTGEH	159	11		36721
HPV33	L1	LLQAGLKA	468	8		36722
HPV33	L1	LLQAGLKAK	468	9		36723
HPV33	L1	LLQAGLKAKPK	468	11		36724
HPV33	L1	LLVPKVSGLQY	61	11		36725
HPV33	L1	LTAEVMTY	382	8		36726
HPV33	L1	LTAEVMTYIH	382	10		36727
HPV33	L1	LTAEVMTYIHA	382	11		36728
HPV33	L1	LVPKVSGLQY	62	10		36729
HPV33	L1	LVPKVSGLQYR	62	11		36730
HPV33	L1	MDFKTLQA	208	8		36731
HPV33	L1	MDFKTLQANK	208	10		36732
HPV33	L1	MFVRHFFNR	255	9		36733
HPV33	L1	MFVRHFFNRA	255	10		36734
HPV33	L1	MSVWRPSEA	1	9		36735
HPV33	L1	MTSEPYGDSLF	237	11		36736
HPV33	L1	MVDTFGCMDF	200	11		36737
HPV33	L1	MVTSESQLF	299	9		36738
HPV33	L1	MVTSESQLFNK	299	11		36739
HPV33	L1	NAKKLLVPK	57	9		36740
HPV33	L1	NFKEYIRH	358	8		36741
HPV33	L1	NGICWGNQVF	321	10		36742
HPV33	L1	PDILEDWQF	395	9		36743
HPV33	L1	PDPNKFGE	79	8		36744
HPV33	L1	PDTQRLVWA	94	9		36745
HPV33	L1	PDYLKMTSEPY	232	11		36746
HPV33	L1	PCQPGADNR	137	9		36747
HPV33	L1	PIDICGSTCK	221	10		36748
HPV33	L1	PIDICGSTCKY	221	11		36749
HPV33	L1	PLGRKFLQA	462	10		36750

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	PLGVGISGH	113	9		36751
HPV33	L1	PSASLQDTY	409	9		36752
HPV33	L1	PSASLQDTYR	409	10		36753
HPV33	L1	PSASLQDTYRF	409	11		36754
HPV33	L1	PTGEHWGK	165	8		36755
HPV33	L1	PTGEHWGKGVA	165	11		36756
HPV33	L1	PTNAKKLLVPK	55	11		36757
HPV33	L1	PTSTRTSSA	484	9		36758
HPV33	L1	PTSTRTSSAK	484	10		36759
HPV33	L1	PTSTRTSSAKR	484	11		36760
HPV33	L1	PVSKVVSTDEY	17	11		36761
HPV33	L1	QAGLKAKPK	470	9		36762
HPV33	L1	QAGLKAKPKLK	470	11		36763
HPV33	L1	QDTYRFVTSQA	414	11		36764
HPV33	L1	QFGLTPPPSA	402	10		36765
HPV33	L1	QFPLGRKF	460	8		36766
HPV33	L1	QFVFQLCK	372	8		36767
HPV33	L1	QLCKVTLTA	376	9		36768
HPV33	L1	QLCLLGCK	156	8		36769
HPV33	L1	QLFNKPYWLQR	305	11		36770
HPV33	L1	QMFVRHFF	254	8		36771
HPV33	L1	QMFVRHFFNR	254	10		36772
HPV33	L1	QMFVRHFFNRA	254	11		36773
HPV33	L1	QTQLCLLGCK	154	10		36774
HPV33	L1	QVFVTVDVTR	328	11		36775
HPV33	L1	QVTSDDTY	347	8		36776
HPV33	L1	QVTSDDTYK	347	9		36777
HPV33	L1	RAAPTSTR	481	8		36778
HPV33	L1	RAGTLGEA	263	8		36779
HPV33	L1	RLAVAGHPY	41	9		36780
HPV33	L1	RLAVAGHPYF	41	10		36781
HPV33	L1	RLDPDNKF	77	8		36782
HPV33	L1	RLDPDNKFGF	77	10		36783
HPV33	L1	RTSIYYA	30	8		36784
HPV33	L1	RTSSAKRK	488	8		36785
HPV33	L1	RTSSAKRKK	488	9		36786
HPV33	L1	RTSSAKRKKVK	488	11		36787
HPV33	L1	RVRLDPNK	75	9		36788
HPV33	L1	RVRLDPDNKF	75	10		36789
HPV33	L1	SADLDQFPLGR	455	11		36790
HPV33	L1	SAKRKKVK	491	8		36791
HPV33	L1	SAKRKKVKK	491	9		36792
HPV33	L1	SASLQDTY	410	8		36793
HPV33	L1	SASLQDTYR	410	9		36794
HPV33	L1	SASLQDTYRF	410	10		36795
HPV33	L1	SDSTYKNENF	350	10		36796

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	SDSTYKNENFK	350	11		36797
HPV33	L1	SFYNPDTQR	90	9		36798
HPV33	L1	SGHPLLNK	119	8		36799
HPV33	L1	SGHPLLKVF	119	9		36800
HPV33	L1	SGLQYRVF	67	8		36801
HPV33	L1	SGLQYRVFR	67	9		36802
HPV33	L1	SGLQYRVFRVR	67	11		36803
HPV33	L1	SGTTASIQSSA	280	11		36804
HPV33	L1	SIKNPTNA	51	8		36805
HPV33	L1	SIKNPTNAK	51	9		36806
HPV33	L1	SIKNPTNAKK	51	10		36807
HPV33	L1	SIOSSAFF	285	8		36808
HPV33	L1	SIYYAGSSR	32	10		36809
HPV33	L1	SLFFELRR	245	8		36810
HPV33	L1	SLQDTYRF	412	8		36811
HPV33	L1	SMVTESQLF	298	10		36812
HPV33	L1	SSAKRKKVK	490	9		36813
HPV33	L1	SSAKRKKVKK	490	10		36814
HPV33	L1	SSRLLAGVGH	39	9		36815
HPV33	L1	SSRLLAGVHPY	39	11		36816
HPV33	L1	STCKYPDY	227	8		36817
HPV33	L1	STCKYPDYLK	227	10		36818
HPV33	L1	STDEYVSR	23	8		36819
HPV33	L1	STRTSSAK	486	8		36820
HPV33	L1	STRTSSAKR	486	9		36821
HPV33	L1	STRTSSAKRK	486	10		36822
HPV33	L1	STRTSSAKRKK	486	11		36823
HPV33	L1	STYKNENF	352	8		36824
HPV33	L1	STYKNENFK	352	9		36825
HPV33	L1	STYKNENFKEY	352	11		36826
HPV33	L1	SVWRPSEA	2	8		36827
HPV33	L1	SVWRPSEATVY	2	11		36828
HPV33	L1	TAEVMTYIH	383	9		36829
HPV33	L1	TAEVMTYIHA	383	10		36830
HPV33	L1	TASIQSSA	283	8		36831
HPV33	L1	TASIQSSAF	283	9		36832
HPV33	L1	TASIQSSAFF	283	10		36833
HPV33	L1	TCQKTPPK	228	9		36834
HPV33	L1	TCQKTPPKK	426	9		36835
HPV33	L1	TCQKTPPKPK	426	11		36836
HPV33	L1	TDEYVSRISY	24	11		36837
HPV33	L1	TFWEVDLK	444	8		36838
HPV33	L1	TFWEVDLKEK	444	10		36839
HPV33	L1	TFWEVDLKEKF	444	11		36840
HPV33	L1	TGEHWGKGA	166	10		36841
HPV33	L1	TGFGCMDK	203	8		36842

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	TGFGCMDFK	203	9		36843
HPV33	L1	TGNKYPGQPGA	132	11		36844
HPV33	L1	TLGEAVPDDL	266	11		36845
HPV33	L1	TLTAEVMTY	381	9		36846
HPV33	L1	TLTAEVMTYIH	381	11		36847
HPV33	L1	TSDSTYKNENF	349	11		36848
HPV33	L1	TSEPYGDSL	238	10		36849
HPV33	L1	TSEPYGDSLFF	238	11		36850
HPV33	L1	TSEQLFNK	301	9		36851
HPV33	L1	TSEQLFNKPY	301	11		36852
HPV33	L1	TSFYNPDTQR	89	10		36853
HPV33	L1	TSIYYAGSSR	31	11		36854
HPV33	L1	TSQAITCQK	421	9		36855
HPV33	L1	TSSAKRKK	489	8		36856
HPV33	L1	TSSAKRKKVK	489	10		36857
HPV33	L1	TSSAKRKKVKK	489	11		36858
HPV33	L1	TSTRTSSA	485	8		36859
HPV33	L1	TSTRTSSAK	485	9		36860
HPV33	L1	TSTRTSSAKR	485	10		36861
HPV33	L1	TSTRTSSAKRK	485	11		36862
HPV33	L1	TTASIQSSA	282	9		36863
HPV33	L1	TTASIQSSAF	282	10		36864
HPV33	L1	TTASIQSSAFF	282	11		36865
HPV33	L1	TVYLPVPVSK	10	11		36866
HPV33	L1	VACTNAAPA	174	9		36867
HPV33	L1	VDLKEKFA	448	9		36868
HPV33	L1	VDTGFCMDF	201	10		36869
HPV33	L1	VDTGFCMDFK	201	11		36870
HPV33	L1	VFQLCKVTLTA	374	11		36871
HPV33	L1	VFRVRLPDPNK	73	11		36872
HPV33	L1	VFTVVDTR	329	10		36873
HPV33	L1	VGHYFYSK	45	9		36874
HPV33	L1	VGISGHPLLNK	116	11		36875
HPV33	L1	VSGLQYRVF	66	9		36876
HPV33	L1	VSGLQYRVFR	66	10		36877
HPV33	L1	VSKVVSTDEY	18	10		36878
HPV33	L1	VSRTSIYY	28	8		36879
HPV33	L1	VSRTSIYY	28	9		36880
HPV33	L1	VSRTSIYYA	28	10		36881
HPV33	L1	VSTDEYVSR	22	9		36882
HPV33	L1	VTLTAEVMTY	380	10		36883
HPV33	L1	VTSDSTYK	348	8		36884
HPV33	L1	VTSEQLF	300	8		36885
HPV33	L1	VTSEQLFNK	300	10		36886
HPV33	L1	VTQAITCQK	420	10		36887
HPV33	L1	VTVDTR	331	8		36888

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L1	VVSTDEYVSR	21	10		36889
HPV33	L1	WACVGLIGR	101	10		36890
HPV33	L1	WGKGVACTNA	170	10		36891
HPV33	L1	WGKGVACTNAA	170	11		36892
HPV33	L1	WLQRAQGH	312	8		36893
HPV33	L1	YAGSRLLA	36	9		36894
HPV33	L1	YDLQVFQLCK	369	11		36895
HPV33	L1	YFSIKNPTNA	49	10		36896
HPV33	L1	YFSIKNPTNAK	49	11		36897
HPV33	L1	YGDSLFF	242	8		36898
HPV33	L1	YGDSLFFFLR	242	10		36899
HPV33	L1	YGDSLFFFLRR	242	11		36900
HPV33	L1	YIKSGTTA	276	9		36901
HPV33	L1	YIRIIVEEY	362	8		36902
HPV33	L1	YLKMTSEPY	234	9		36903
HPV33	L1	YLPVPVPSK	12	9		36904
HPV33	L1	YTFWEVDLK	443	9		36905
HPV33	L1	YTFWEVDLKEK	443	11		36906
HPV33	L1	YVRSISY	27	8		36907
HPV33	L1	YVRSISYY	27	9		36908
HPV33	L1	YVRSISYY	27	10		36909
HPV33	L1	YVRSISYYA	27	11		36910
HPV33	L2	AAIPLOPIR	81	9		36911
HPV33	L2	ADDVDNVH	367	8		36912
HPV33	L2	ADFLHPSY	438	9		36913
HPV33	L2	ADFLHPSYF	438	10		36914
HPV33	L2	AFLTSPHK	241	8		36915
HPV33	L2	AIPLOPIR	82	8		36916
HPV33	L2	AITSRRIHVR	291	10		36917
HPV33	L2	AITSRRIHVR	291	11		36918
HPV33	L2	ALHRPAITSR	286	10		36919
HPV33	L2	ALHRPAITSRR	286	11		36920
HPV33	L2	ASATQLYQTCK	12	11		36921
HPV33	L2	ATLKTRSGK	308	9		36922
HPV33	L2	ATQLYQTCK	14	9		36923
HPV33	L2	ATQLYQTCKA	14	10		36924
HPV33	L2	DFLDIALH	280	9		36925
HPV33	L2	DFLDIALHR	280	10		36926
HPV33	L2	DFVLIHPSY	439	8		36927
HPV33	L2	DFVLIHPSYF	439	9		36928
HPV33	L2	DGADFLVLI	436	8		36929
HPV33	L2	DGADFLVLIHPSY	436	11		36930
HPV33	L2	DGLYDVYA	360	8		36931
HPV33	L2	DIALHRPA	283	9		36932
HPV33	L2	DISPAPDPDF	272	10		36933
HPV33	L2	DLSPVPLDH	327	10		36934

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L2	DTIVVDGA	431	8		36935
HPV33	L2	DTIVVDGADF	431	10		36936
HPV33	L2	DVDNVIITPMQH	369	11		36937
HPV33	L2	DVTSADTTPA	130	11		36938
HPV33	L2	DVYADDVDNVII	364	11		36939
HPV33	L2	EASGHFIF	176	8		36940
HPV33	L2	EDTLQFQH	263	8		36941
HPV33	L2	EGSTIADQILK	36	11		36942
HPV33	L2	ESFDPEDTLQF	258	11		36943
HPV33	L2	ESSIQTISTII	149	10		36944
HPV33	L2	ETSIEAGA	110	9		36945
HPV33	L2	ETSIEAGAPA	110	11		36946
HPV33	L2	FDPEDTLQF	260	9		36947
HPV33	L2	FDPEDTLQFQH	260	11		36948
HPV33	L2	FDTIVVDGA	430	9		36949
HPV33	L2	FDTIVVDGADF	430	11		36950
HPV33	L2	FFTDVRVA	459	8		36951
HPV33	L2	FFTDVRVAA	459	9		36952
HPV33	L2	FIEAGAPA	113	8		36953
HPV33	L2	FILRRRRK	447	8		36954
HPV33	L2	FILRRRRKR	447	9		36955
HPV33	L2	FILRRRRKRF	447	10		36956
HPV33	L2	FLDIILH	281	8		36957
HPV33	L2	FLDIILHR	281	9		36958
HPV33	L2	FLDIILHRPA	281	11		36959
HPV33	L2	FLTSPILKITY	242	11		36960
HPV33	L2	FSRVGQKA	301	8		36961
HPV33	L2	FSRVGQKATLK	301	11		36962
HPV33	L2	FSSPTVSTQSY	183	11		36963
HPV33	L2	FTDVRVAA	460	8		36964
HPV33	L2	FTEPSVLH	163	8		36965
HPV33	L2	FTEPSVLIIPA	163	11		36966
HPV33	L2	FVLHPSYF	440	8		36967
HPV33	L2	FVLHPSYFILR	440	11		36968
HPV33	L2	FVPISPF	421	8		36969
HPV33	L2	FVPISPFPP	421	10		36970
HPV33	L2	GADFLHPSY	437	10		36971
HPV33	L2	GADFLHPSYF	437	11		36972
HPV33	L2	GFDVTTSA	128	8		36973
HPV33	L2	GIGTSGSGGR	58	11		36974
HPV33	L2	GLYSRNTQQVK	226	11		36975
HPV33	L2	GSGGRTGY	64	8		36976
HPV33	L2	GSGGRTGY	62	10		36977
HPV33	L2	GSRPVARLGLY	218	11		36978
HPV33	L2	GSTIADQILK	37	10		36979
HPV33	L2	GSTIADQILKY	37	11		36980

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L2	GTCPDVIPIK	25	10		36981
HPV33	L2	GTDPPTAA	75	8		36982
HPV33	L2	GTSGSGGR	60	9		36983
HPV33	L2	HDTSTSSY	349	8		36984
HPV33	L2	HSYSTFATR	379	10		36985
HPV33	L2	HTPMQHSY	374	8		36986
HPV33	L2	HTPMQHSYSTF	374	11		36987
HPV33	L2	HTVPNEQY	336	8		36988
HPV33	L2	HTVRFVRVGQK	297	11		36989
HPV33	L2	IADQILKY	40	8		36990
HPV33	L2	IALHRPAITSR	285	11		36991
HPV33	L2	IGARIHY	318	8		36992
HPV33	L2	IGTDPPTA	74	8		36993
HPV33	L2	IGTDPPTAA	74	9		36994
HPV33	L2	IGTSGSGGR	59	10		36995
HPV33	L2	IILHRPA	284	8		36996
HPV33	L2	ILKYGSLGVF	44	10		36997
HPV33	L2	ILKYGSLGVFF	44	11		36998
HPV33	L2	ILRRRRKR	448	8		36999
HPV33	L2	ILRRRRKRF	448	9		37000
HPV33	L2	ILRRRRKRPY	448	11		37001
HPV33	L2	ISPAPPDF	273	9		37002
HPV33	L2	ISTHLNPTF	155	9		37003
HPV33	L2	ITSRRHTVR	292	9		37004
HPV33	L2	ITSRRHTVRF	292	10		37005
HPV33	L2	ITYDNPAF	250	8		37006
HPV33	L2	ITYDNPAFESF	250	11		37007
HPV33	L2	IVSLIEETSF	104	10		37008
HPV33	L2	IVVDGADF	433	8		37009
HPV33	L2	IVVDGADFVLH	433	11		37010
HPV33	L2	KATLKTRSGK	307	10		37011
HPV33	L2	KLITYDNPA	248	9		37012
HPV33	L2	KLITYDNPAF	248	10		37013
HPV33	L2	KTRSGKQIGA	311	10		37014
HPV33	L2	KTRSGKQIGAR	311	11		37015
HPV33	L2	KVEGSTIA	34	8		37016
HPV33	L2	LDHTVPNEQY	334	10		37017
HPV33	L2	LDIILHR	282	8		37018
HPV33	L2	LDIILHRPA	282	10		37019
HPV33	L2	LFTSSPF	414	8		37020
HPV33	L2	LIEETSFIA	107	10		37021
HPV33	L2	LITYDNPA	249	8		37022
HPV33	L2	LITYDNPAF	249	9		37023
HPV33	L2	LSPVPLDH	328	9		37024
HPV33	L2	LTSPHKLITY	243	10		37025
HPV33	L2	MSGPDIPSPLF	405	11		37026

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L2	NDGLYDVY	359	8		37027
HPV33	L2	NDGLYDVYA	359	9		37028
HPV33	L2	NTQQVKVVDPA	231	11		37029
HPV33	L2	NVHTPMQH	372	8		37030
HPV33	L2	NVHTPMQHSY	372	10		37031
HPV33	L2	NVHTPMQHTG	391	10		37032
HPV33	L2	PAEASGHF	174	8		37033
HPV33	L2	PAEASGHFIF	174	10		37034
HPV33	L2	PAFLTSPH	240	8		37035
HPV33	L2	PAFLTSPHKK	240	9		37036
HPV33	L2	PAITSRRH	290	8		37037
HPV33	L2	PAITSRRHTVR	290	11		37038
HPV33	L2	PAPAEASGH	172	9		37039
HPV33	L2	PAPAEASGHF	172	10		37040
HPV33	L2	PAPSIPTPSGF	119	11		37041
HPV33	L2	PDFLDIIA	279	8		37042
HPV33	L2	PDFLDIIALH	279	10		37043
HPV33	L2	PDFLDIIALHR	279	11		37044
HPV33	L2	PDIPSPLF	408	8		37045
HPV33	L2	PDPDFLDIIA	277	10		37046
HPV33	L2	PEDTIVVDGA	429	10		37047
HPV33	L2	PFVPISPF	420	8		37048
HPV33	L2	PFVPISPFF	420	9		37049
HPV33	L2	PFVPISPFFPF	420	11		37050
HPV33	L2	PGSRPVAR	217	8		37051
HPV33	L2	PIGTDPTA	73	9		37052
HPV33	L2	PIGTDPTAA	73	10		37053
HPV33	L2	PIGSRPVA	215	9		37054
HPV33	L2	PIGSRPVAR	215	10		37055
HPV33	L2	PISPEPF	423	8		37056
HPV33	L2	PLDHTVPNEQY	333	11		37057
HPV33	L2	PLFPTSSPF	413	9		37058
HPV33	L2	PLHDTSTSY	347	10		37059
HPV33	L2	PMQHSYSTF	376	9		37060
HPV33	L2	PMQHSYSTFA	376	10		37061
HPV33	L2	PSGFDVTTSA	126	10		37062
HPV33	L2	PSIPTPSGF	121	9		37063
HPV33	L2	PSPLFTSSPF	411	11		37064
HPV33	L2	PSVLHPPA	166	8		37065
HPV33	L2	PSVLHPPAPA	166	10		37066
HPV33	L2	PSYFILRR	444	8		37067
HPV33	L2	PSYFILRRR	444	9		37068
HPV33	L2	PSYFILRRRR	444	10		37069
HPV33	L2	PSYFILRRRRK	444	11		37070
HPV33	L2	PTAAIPLQPIR	79	11		37071
HPV33	L2	PTFTSPSVLH	161	10		37072

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L2	PTVSTQSY	186	8		37073
HPV33	L2	PVARLGLY	221	8		37074
HPV33	L2	PVARLGLYSR	221	10		37075
HPV33	L2	QDLSPVPLDH	326	11		37076
HPV33	L2	QFQHSDISPA	267	10		37077
HPV33	L2	QIGARIHY	317	8		37078
HPV33	L2	QIGARIHY	317	9		37079
HPV33	L2	QILKYGSLGVF	43	11		37080
HPV33	L2	QLYQTCKA	16	8		37081
HPV33	L2	QSYENIPMDTF	191	11		37082
HPV33	L2	QTISTILNPTF	153	11		37083
HPV33	L2	QVKVVDPA	234	8		37084
HPV33	L2	QVKVVDPAF	234	9		37085
HPV33	L2	RASATQLY	11	8		37086
HPV33	L2	RFPYFFTDVR	455	10		37087
HPV33	L2	RFSRVGQK	300	8		37088
HPV33	L2	RFSRVGQKA	300	9		37089
HPV33	L2	RSGKQIGA	313	8		37090
HPV33	L2	RSGKQIGAR	313	9		37091
HPV33	L2	RSGKQIGARIH	313	11		37092
HPV33	L2	RSTRKRRA	5	8		37093
HPV33	L2	RSTRKRRA	5	10		37094
HPV33	L2	RVGQKATLK	303	9		37095
HPV33	L2	RVGQKATLKTR	303	11		37096
HPV33	L2	SATQLYQTCK	13	10		37097
HPV33	L2	SATQLYQTCKA	13	11		37098
HPV33	L2	SDISPAPDPDF	271	11		37099
HPV33	L2	SFDPEDTLQF	259	10		37100
HPV33	L2	SFIEAGAPA	112	9		37101
HPV33	L2	SGFDVTTSA	127	9		37102
HPV33	L2	SGKQIGAR	314	8		37103
HPV33	L2	SGKQIGARIH	314	10		37104
HPV33	L2	SGKQIGARIHY	314	11		37105
HPV33	L2	SGPDIPSPLF	406	10		37106
HPV33	L2	SGSGGRITGY	63	9		37107
HPV33	L2	SINDGLYDVY	357	10		37108
HPV33	L2	SINDGLYDVYA	357	11		37109
HPV33	L2	SIPLNTGF	393	8		37110
HPV33	L2	SIPTPSGF	122	8		37111
HPV33	L2	SIQTISTH	151	8		37112
HPV33	L2	SIVSLJEETSF	103	11		37113
HPV33	L2	SLIEETSF	106	8		37114
HPV33	L2	SLIEETSFIEA	106	11		37115
HPV33	L2	SSIQTISTH	150	9		37116
HPV33	L2	SSPFVPISPF	418	10		37117
HPV33	L2	SSPFVPISPF	418	11		37118

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L2	SSPTVSTQSY	184	10		37119
HPV33	L2	SSTPIPGSR	212	9		37120
HPV33	L2	SSYSINDGLY	354	10		37121
HPV33	L2	STHLNPTF	156	8		37122
HPV33	L2	STIADQILK	38	9		37123
HPV33	L2	STIADQILKY	38	10		37124
HPV33	L2	STPIGSR	213	8		37125
HPV33	L2	STPIGSRPVA	213	11		37126
HPV33	L2	STRKRASA	6	9		37127
HPV33	L2	SVLHPPAPA	167	9		37128
HPV33	L2	SVLHPPAPAEA	167	11		37129
HPV33	L2	TAAIPLQPIR	80	10		37130
HPV33	L2	TCPPDVIPK	26	9		37131
HPV33	L2	TFTEPSVLH	162	9		37132
HPV33	L2	TGSGSGGR	61	8		37133
HPV33	L2	TGSGSGGRTGY	61	11		37134
HPV33	L2	TGTCPPDVIPK	24	11		37135
HPV33	L2	TIADQILK	39	8		37136
HPV33	L2	TIADQILKY	39	9		37137
HPV33	L2	TISTHLNPTF	154	10		37138
HPV33	L2	TIVVDGADF	432	9		37139
HPV33	L2	TLKTRSGK	309	8		37140
HPV33	L2	TSADTTPA	133	8		37141
HPV33	L2	TSFIEAGA	111	8		37142
HPV33	L2	TSFIEAGAPA	111	10		37143
HPV33	L2	TSPIKLITY	244	9		37144
HPV33	L2	TSRRHTVR	293	8		37145
HPV33	L2	TSRRHTVRF	293	9		37146
HPV33	L2	TSRRHTVRFSR	293	11		37147
HPV33	L2	TSSPFVPISPF	417	11		37148
HPV33	L2	TSSTPIPGSR	211	10		37149
HPV33	L2	TSSYSINDGLY	353	11		37150
HPV33	L2	TSADTTPA	132	9		37151
HPV33	L2	TVRFSRVGQK	298	10		37152
HPV33	L2	TVRFSRVGQKA	298	11		37153
HPV33	L2	VARLGLYSR	222	9		37154
HPV33	L2	VDGADFVLH	435	9		37155
HPV33	L2	VDNVHTPMQH	370	10		37156
HPV33	L2	VDPAFLTSPH	238	10		37157
HPV33	L2	VDPAFLTSPHK	238	11		37158
HPV33	L2	VGQKATLK	304	8		37159
HPV33	L2	VGQKATLKTR	304	10		37160
HPV33	L2	VIPKVEGSTIA	31	11		37161
HPV33	L2	VLHPPAPA	168	8		37162
HPV33	L2	VLHPPAPAEA	168	10		37163
HPV33	L2	VLHPSYFILR	441	10		37164

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV33	L2	VLHPSYFILRR	441	11		37165
HPV33	L2	VSPLNTGF	392	9		37166
HPV33	L2	VSLEETSF	105	9		37167
HPV33	L2	VTSTPIPGSR	210	11		37168
HPV33	L2	VTTSADTPA	131	10		37169
HPV33	L2	VVDGADFVLH	434	10		37170
HPV33	L2	VVDPAFLTSPH	237	11		37171
HPV33	L2	YADDVDNVH	366	9		37172
HPV33	L2	YDNPAFESF	252	9		37173
HPV33	L2	YFTDVRVA	458	9		37174
HPV33	L2	YFTDVRVAA	458	10		37175
HPV33	L2	YFILRRR	446	8		37176
HPV33	L2	YFILRRRRK	446	9		37177
HPV33	L2	YFILRRRRKR	446	10		37178
HPV33	L2	YFILRRRRKRF	446	11		37179
HPV33	L2	YGLGVFF	47	8		37180
HPV33	L2	YSINDGLY	356	8		37181
HPV33	L2	YSINDGLYDVY	356	11		37182
HPV33	L2	YSRNTQQVK	228	9		37183
HPV33	L2	YSTFATR	381	8		37184
HPV33	L2	YVPIGTDPPTA	71	11		37185
HPV45	E1	AAAFKSNCA	382	11		37186
HPV45	E1	AAFLKSNCA	383	10		37187
HPV45	E1	AAFLKSNCAQAK	383	11		37188
HPV45	E1	AAMLAVFK	198	8		37189
HPV45	E1	AAMLAVFKDIY	198	11		37190
HPV45	E1	ADCNSAA	376	8		37191
HPV45	E1	ADCNSAAA	376	9		37192
HPV45	E1	ADCNSAAAF	376	10		37193
HPV45	E1	ADTEGIPF	622	8		37194
HPV45	E1	ADTEGIPFGTF	622	11		37195
HPV45	E1	ADTKVAMLDAA	507	11		37196
HPV45	E1	AFLKSNCA	384	9		37197
HPV45	E1	AFLKSNCAQAK	384	10		37198
HPV45	E1	AFLKSNCAQAKY	384	11		37199
HPV45	E1	AFQYAQLA	369	8		37200
HPV45	E1	AIFGVNPTVA	232	10		37201
HPV45	E1	AISFVNSNH	490	11		37202
HPV45	E1	ALDGNPISDR	532	11		37203
HPV45	E1	ALKEFLKGTPK	452	11		37204
HPV45	E1	ALLRYKCGK	270	9	0.0900	37205
HPV45	E1	ALLRYKCGKNR	270	11		37206
HPV45	E1	AMLAVFKDIY	199	10		37207
HPV45	E1	AMLDATAH	512	8		37208
HPV45	E1	ASNKKAAMLA	193	10		37209
HPV45	E1	ATDTGSDMVDF	40	11		37210

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	ATHTCWTV	517	8		37211
HPV45	E1	ATHTCWTVF	517	9		37212
HPV45	E1	AVFKDIYGLSF	202	11		37213
HPV45	E1	AVMCRHYK	399	8		37214
HPV45	E1	AVMCRHYKR	399	9		37215
HPV45	E1	AVMCRHYKRA	399	10		37216
HPV45	E1	CAVMCRHIY	398	8		37217
HPV45	E1	CAVMCRHYK	398	9		37218
HPV45	E1	CAVMCRHYKR	398	10		37219
HPV45	E1	CAVMCRHYKRA	398	11		37220
HPV45	E1	CFERTWSR	604	9		37221
HPV45	E1	CGKNRLTVA	276	9		37222
HPV45	E1	CGKNRLTVAK	276	10		37223
HPV45	E1	CILLYGPA	465	8		37224
HPV45	E1	CMLIEPPK	297	8		37225
HPV45	E1	CMLIEPPKLR	297	10		37226
HPV45	E1	CSKIDEGGDWR	423	11		37227
HPV45	E1	CTDWVMAIF	226	9		37228
HPV45	E1	CVTQGNTR	634	8		37229
HPV45	E1	DADTEGIPF	621	9		37230
HPV45	E1	DAQVLJLLK	78	9		37231
HPV45	E1	DAQVLHLLKR	78	10		37232
HPV45	E1	DAQVLHLLKRK	78	11		37233
HPV45	E1	DATHTCWTV	516	9		37234
HPV45	E1	DATHTCWTVF	516	10		37235
HPV45	E1	DCAVMCRH	397	8		37236
HPV45	E1	DCAVMCRHY	397	9		37237
HPV45	E1	DCAVMCRHYK	397	10		37238
HPV45	E1	DCAVMCRHYKR	397	11		37239
HPV45	E1	DCKWGVLLLA	261	10		37240
HPV45	E1	DCNSNAAA	377	8		37241
HPV45	E1	DCNSNAAAF	377	9		37242
HPV45	E1	DCNSNAAAFK	377	11		37243
HPV45	E1	DDATHTCWTV	515	10		37244
HPV45	E1	DDATHTCWTVF	515	11		37245
HPV45	E1	DGEGTGCGWGF	8	11		37246
HPV45	E1	DGNPISIDR	534	9		37247
HPV45	E1	DGNPISIDRK	534	10		37248
HPV45	E1	DGNPISIDRKH	534	11		37249
HPV45	E1	DLIEDDEDA	614	9		37250
HPV45	E1	DLSDMVQWA	349	9		37251
HPV45	E1	DLSDMVQWAF	349	10		37252
HPV45	E1	DLTDESDMA	361	9		37253
HPV45	E1	DLTDESDMAF	361	10		37254
HPV45	E1	DLVRNFKSDK	214	10		37255
HPV45	E1	DMAFQYAQLA	367	10		37256

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	DSGYGCSEVEA	134	11		37257
HPV45	E1	DTEGIPFGTF	623	10		37258
HPV45	E1	DTEGIPFGTFK	623	11		37259
HPV45	E1	DTGSDMVDVF	42	9		37260
HPV45	E1	DTKVAMLDDA	508	10		37261
HPV45	E1	DTPEWIQR	328	8		37262
HPV45	E1	DTQLSICEQA	52	10		37263
HPV45	E1	DVISDDEDETA	30	11		37264
HPV45	E1	EDADTEGIPF	620	10		37265
HPV45	E1	EFISFLRA	445	8		37266
HPV45	E1	EFISFLRALK	445	10		37267
HPV45	E1	EFLKGTPK	455	8		37268
HPV45	E1	EFLKGTPKK	455	9		37269
HPV45	E1	EGFKTLIK	242	8		37270
HPV45	E1	EGFKTLIKPA	242	10		37271
HPV45	E1	EGGDWRPIVQF	428	11		37272
HPV45	E1	EGIPFGTF	625	8		37273
HPV45	E1	EGIPFGTFK	625	9		37274
HPV45	E1	EGTGCNGWF	10	9	0.0008	37275
HPV45	E1	EGTGCNGWFF	10	10		37276
HPV45	E1	EINDKNWK	596	8		37277
HPV45	E1	EINDKNWKCF	596	10		37278
HPV45	E1	EINDKNWKCFE	596	11		37279
HPV45	E1	EISLSNGH	115	8		37280
HPV45	E1	EISLSNGHK	115	9		37281
HPV45	E1	EISLSNGHKK	115	10		37282
HPV45	E1	EISLSNGHKKK	115	11		37283
HPV45	E1	ELKELLQA	186	8		37284
HPV45	E1	ELKELLQASNK	186	11		37285
HPV45	E1	ELLQASNK	189	8		37286
HPV45	E1	ELLQASNKK	189	9		37287
HPV45	E1	ELLQASNKKK	189	10		37288
HPV45	E1	ELLQASNKKKAA	189	11		37289
HPV45	E1	ESDMAFQY	365	8		37290
HPV45	E1	ESDMAFQYA	365	9		37291
HPV45	E1	ESRVTFTF	573	9		37292
HPV45	E1	ESRVTFTFPH	573	11		37293
HPV45	E1	ETAQALFH	64	8		37294
HPV45	E1	ETAQALFHA	64	9		37295
HPV45	E1	ETCMLIEPPK	295	10		37296
HPV45	E1	ETQVTVNTNA	146	10		37297
HPV45	E1	EVQNDAQVLH	74	10		37298
HPV45	E1	FDKNGNPVY	587	9		37299
HPV45	E1	FDSLDMVQWA	348	10		37300
HPV45	E1	FDSLDMVQWAF	348	11		37301
HPV45	E1	FDNYMRNA	525	8		37302

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	FFERTWSR	605	8		37303
HPV45	E1	FFVETIVEK	18	9		37304
HPV45	E1	FFVETIVEKK	18	10		37305
HPV45	E1	FGMSFIIF	479	8		37306
HPV45	E1	FGVNPTVA	234	8		37307
HPV45	E1	FGVNPTVAEGF	234	11		37308
HPV45	E1	FIHFLQGA	483	8		37309
HPV45	E1	FISFLRALK	446	9		37310
HPV45	E1	FISFLRALKEF	446	11		37311
HPV45	E1	FLKGTPEK	456	8		37312
HPV45	E1	FLKSNCQA	385	8		37313
HPV45	E1	FLKSNCQAK	385	9	0.0035	37314
HPV45	E1	FLKSNCQAKY	385	10		37315
HPV45	E1	FLQGAISF	486	9		37316
HPV45	E1	FLRALKEF	449	8		37317
HPV45	E1	FLRALKEFLK	449	10		37318
HPV45	E1	FLRYQGVF	438	9		37319
HPV45	E1	FTDLVRNF	212	8		37320
HPV45	E1	FTDLVRNEK	212	9		37321
HPV45	E1	FTFPHAFPF	579	9		37322
HPV45	E1	FTFPHAFPFDK	579	11		37323
HPV45	E1	FTSDSGY	130	8		37324
HPV45	E1	FVETIVEK	19	8		37325
HPV45	E1	FVETIVEKK	19	9		37326
HPV45	E1	FVNSNSHF	494	8		37327
HPV45	E1	GCSEVEAA	138	8		37328
HPV45	E1	GDTPEWIQR	327	9	0.0008	37329
HPV45	E1	GDWRPIVQF	430	9		37330
HPV45	E1	GDWRPIVQFLR	430	11		37331
HPV45	E1	GFKTLIKPA	243	9		37332
HPV45	E1	GGDSSDNA	168	8		37333
HPV45	E1	GGDWRPIVQF	429	10		37334
HPV45	E1	GIPFGTFK	626	8		37335
HPV45	E1	GLSFTDLVR	209	9	0.0009	37336
HPV45	E1	GLSFTDLVRNF	209	11		37337
HPV45	E1	GMSFIHFLQGA	480	11		37338
HPV45	E1	GTGCGNGWF	11	8		37339
HPV45	E1	GTGCGNGWFF	11	9		37340
HPV45	E1	GTPKKNICILLY	459	11		37341
HPV45	E1	GVEFISFLR	443	9		37342
HPV45	E1	GVEFISFLRA	443	10		37343
HPV45	E1	GVLILALLR	265	9	0.0058	37344
HPV45	E1	GVLILALLRY	265	10		37345
HPV45	E1	GVLILALLRYK	265	11		37346
HPV45	E1	GVNPTVAEGF	235	10		37347
HPV45	E1	GVNPTVAEGFK	235	11		37348

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	HAQEVQND	71	9		37349
HPV45	E1	HCSITELK	181	8		37350
HPV45	E1	HFLQGAISF	485	10		37351
HPV45	E1	HFWEPLA	500	8		37352
HPV45	E1	HFWEPLADTK	500	11		37353
HPV45	E1	HGIDDSNF	341	8		37354
HPV45	E1	HIQCLDCK	256	8		37355
HPV45	E1	HLLKRKFA	83	8		37356
HPV45	E1	ITCWTFYFDNY	519	10		37357
HPV45	E1	ICEQAEQETA	57	10		37358
HPV45	E1	IDEGGDWR	426	8		37359
HPV45	E1	IDPAKDNK	561	8		37360
HPV45	E1	IDPAKDNKWPY	561	11		37361
HPV45	E1	IDTQLSICEQA	51	11		37362
HPV45	E1	IFGVNPTVA	233	9		37363
HPV45	E1	IIHQGIDDSNF	338	11		37364
HPV45	E1	IISFVNSNSH	491	10		37365
HPV45	E1	IISFVNSNSHF	491	11		37366
HPV45	E1	ILALLRYK	268	8		37367
HPV45	E1	ILALLRYKCGK	268	11		37368
HPV45	E1	ILLTSNIDPA	555	10		37369
HPV45	E1	ILLTSNIDPAK	555	11		37370
HPV45	E1	ILLYGPANTGK	466	11		37371
HPV45	E1	ISDDEDETA	32	9		37372
HPV45	E1	ISFLRALK	447	8		37373
HPV45	E1	ISFLRALKKEF	447	10		37374
HPV45	E1	ISFVNSNSH	492	9		37375
HPV45	E1	ISFVNSNSHF	492	10		37376
HPV45	E1	ISIDRKIIK	538	8		37377
HPV45	E1	ISLNSGHK	116	8		37378
HPV45	E1	ISLNSGHKK	116	9		37379
HPV45	E1	ISLNSGHKKA	116	10		37380
HPV45	E1	ISLNSGHKKAK	116	11		37381
HPV45	E1	ITELKELLQA	184	10		37382
HPV45	E1	KAAMLAVF	197	8		37383
HPV45	E1	KAAMLAVFK	197	9		37384
HPV45	E1	KCFERTWSR	603	10		37385
HPV45	E1	KCGKNRLTVA	275	10		37386
HPV45	E1	KCGKNRLTVAK	275	11		37387
HPV45	E1	KCVTGQNTN	633	9		37388
HPV45	E1	KDCAVMCR	396	8		37389
HPV45	E1	KDCAVMCRH	396	9		37390
HPV45	E1	KDCAVMCRHY	396	10		37391
HPV45	E1	KDCAVMCRHYK	396	11		37392
HPV45	E1	KDIYGLSF	205	8		37393
HPV45	E1	KDNKWPLYESR	565	11		37394

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	KGLSTLLH	285	8		37395
HPV45	E1	KIDEGGDWR	425	9		37396
HPV45	E1	KLRSSVAA	304	8		37397
HPV45	E1	KLRSSVAALY	304	10		37398
HPV45	E1	KSNCQAKY	387	8		37399
HPV45	E1	KSNCQAKYLK	387	10		37400
HPV45	E1	KSYFGMSF	476	8		37401
HPV45	E1	KSYFGMSFIH	476	10		37402
HPV45	E1	KSYFGMSFIHF	476	11		37403
HPV45	E1	KTLIKPATLY	245	10		37404
HPV45	E1	KTLIKPATLYA	245	11		37405
HPV45	E1	KTTCTDWWMA	223	10		37406
HPV45	E1	KVAMLDDA	510	8		37407
HPV45	E1	KVAMLDLDDATH	510	10		37408
HPV45	E1	LADCNSNA	375	8		37409
HPV45	E1	LADCNSNAA	375	9		37410
HPV45	E1	LADCNSNAAA	375	10		37411
HPV45	E1	LADCNSNAAAF	375	11		37412
HPV45	E1	LALLRYKCGK	269	10		37413
HPV45	E1	LAVFKDIY	201	8		37414
HPV45	E1	LDCKWGVLLA	260	11		37415
HPV45	E1	LDLHEDHEDDA	514	11		37416
HPV45	E1	LDGNPISIDR	533	10		37417
HPV45	E1	LDGNPISIDRK	533	11		37418
HPV45	E1	LDLHEDHEDDA	613	10		37419
HPV45	E1	LFHAQEVQND	69	11		37420
HPV45	E1	LFTISDSGY	129	9		37421
HPV45	E1	LIEPPKLR	299	8		37422
HPV45	E1	LIKPATLY	247	8		37423
HPV45	E1	LIKPATLYA	247	9		37424
HPV45	E1	LIKPATLYAH	247	10		37425
HPV45	E1	LILALLRY	267	8		37426
HPV45	E1	LILALLRYK	267	9	0.2700	37427
HPV45	E1	LLKRKFAGGSK	84	11		37428
HPV45	E1	LLQASNKK	190	8		37429
HPV45	E1	LLQASNKKA	190	9		37430
HPV45	E1	LLQASNKKAA	190	10		37431
HPV45	E1	LLRYKCGK	271	8		37432
HPV45	E1	LLRYKCGKNR	271	10		37433
HPV45	E1	LLTSNIDPA	556	9		37434
HPV45	E1	LLTSNIDPAK	556	10		37435
HPV45	E1	LLYGPANTGK	467	10		37436
HPV45	E1	LSDMVQWA	350	8		37437
HPV45	E1	LSDMVQWAF	350	9		37438
HPV45	E1	LSFTDLVR	210	8		37439
HPV45	E1	LSFTDLVRNF	210	10		37440

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	LSFTDLVRNEK	210	11		37441
HPV45	E1	LSVDTDLSPR	103	10		37442
HPV45	E1	LTDES DMA	362	8		37443
HPV45	E1	LTDESMAF	362	9		37444
HPV45	E1	LTDESMAFQY	362	11		37445
HPV45	E1	LTSNIDPA	557	8		37446
HPV45	E1	LTSNIDPAK	557	9		37447
HPV45	E1	LVRNFKSDK	215	9	0.0005	37448
HPV45	E1	MAFYAQLA	368	9		37449
HPV45	E1	MAIFGVNPTVA	231	11		37450
HPV45	E1	MCRHYKRA	401	8		37451
HPV45	E1	MCRHYKRAQK	401	10		37452
HPV45	E1	MCRHYKRAQKR	401	11		37453
HPV45	E1	MLAVFKDIY	200	9		37454
HPV45	E1	MLIEPPKLR	298	9		37455
HPV45	E1	MSFIHFLQGA	481	10		37456
HPV45	E1	MSQWIKYR	415	8		37457
HPV45	E1	MSQWIKYRCSK	415	11		37458
HPV45	E1	NAENGGSVH	154	9		37459
HPV45	E1	NAENVDPH	174	8		37460
HPV45	E1	NCILLYGPA	464	9		37461
HPV45	E1	NCQAKYLK	389	8		37462
HPV45	E1	NCQAKYLKDCA	389	11		37463
HPV45	E1	NDAQVLHLLK	77	10		37464
HPV45	E1	NDAQVLHLLKR	77	11		37465
HPV45	E1	NDKNWKCF	598	8		37466
HPV45	E1	NDKNWKCF	598	9		37467
HPV45	E1	NDKNWKCFER	598	11		37468
HPV45	E1	NDLTDES DMA	360	10		37469
HPV45	E1	NDLTDESMAF	360	11		37470
HPV45	E1	NFDLSDMVQWA	347	11		37471
HPV45	E1	NGNPVYEINDK	590	11		37472
HPV45	E1	NIDPAKDNK	560	9		37473
HPV45	E1	NMSQWIKY	414	8		37474
HPV45	E1	NMSQWIKYR	414	9		37475
HPV45	E1	NSGHHKAK	119	8		37476
HPV45	E1	NSGHHKAKR	119	9		37477
HPV45	E1	NSGHHKAKRR	119	10		37478
HPV45	E1	NSHFWLEPLA	498	10		37479
HPV45	E1	NSNAAAFLLK	379	9	0.0057	37480
HPV45	E1	NTGKSYFGMSF	473	11		37481
HPV45	E1	NTNAENGGSVH	152	11		37482
HPV45	E1	PAKDNKWPY	563	9		37483
HPV45	E1	PANTGKSY	471	8		37484
HPV45	E1	PANTGKSYF	471	9		37485
HPV45	E1	PFDKNGNPVY	586	10		37486

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	PILLTSNIDPA	554	11		37487
HPV45	E1	PISIDRKIH	537	8		37488
HPV45	E1	PISIDRKIHK	537	9		37489
HPV45	E1	PIVQFLRY	434	8		37490
HPV45	E1	PLADTKVA	505	8		37491
HPV45	E1	PTVAEGFK	238	8		37492
HPV45	E1	PVYEINDK	593	8		37493
HPV45	E1	PVYEINDKNWK	593	11		37494
HPV45	E1	QAEQETAQA	60	9		37495
HPV45	E1	QAEQETAQALF	60	11		37496
HPV45	E1	QAKYLDCA	391	9		37497
HPV45	E1	QASNKKA	192	8		37498
HPV45	E1	QASNKKAAMLA	192	11		37499
HPV45	E1	QFLRYQGVF	437	10		37500
HPV45	E1	QGVFISF	442	8		37501
HPV45	E1	QGVFISFLR	442	10		37502
HPV45	E1	QGVFISFLRA	442	11		37503
HPV45	E1	QLADCNSNA	374	9		37504
HPV45	E1	QLADCNSNAA	374	10		37505
HPV45	E1	QLADCNSNAAA	374	11		37506
HPV45	E1	QLSICEQA	54	8		37507
HPV45	E1	QLSVDTLSPR	102	11		37508
HPV45	E1	QNMMSQWIK	412	9		37509
HPV45	E1	QNMMSQWIKY	412	10		37510
HPV45	E1	QNMMSQWIKYR	412	11		37511
HPV45	E1	QSSGGSDSDNA	165	11		37512
HPV45	E1	QVLHLKR	80	8		37513
HPV45	E1	QVLHLKRK	80	9		37514
HPV45	E1	QVLHLKRKF	80	10		37515
HPV45	E1	QVLHLKRKFA	80	11		37516
HPV45	E1	QVTNTNA	148	8		37517
HPV45	E1	RALKEFLK	451	8		37518
HPV45	E1	RLDLHEDDEDA	612	11		37519
HPV45	E1	RLFTISDSGY	128	10		37520
HPV45	E1	RLQEISLNSGH	112	11		37521
HPV45	E1	RSSVAALY	306	8		37522
HPV45	E1	RSSVAALYWY	306	10		37523
HPV45	E1	RSSVAALYWYR	306	11		37524
HPV45	E1	RTWSRLDLH	608	9		37525
HPV45	E1	RVTVFTFPI	575	9		37526
HPV45	E1	RVTVFTFPHA	575	10		37527
HPV45	E1	RVTVFTFPHAF	575	11		37528
HPV45	E1	SDDEDETA	33	8		37529
HPV45	E1	SDMAFOYA	366	8		37530
HPV45	E1	SDMAFOYAQLA	366	11		37531
HPV45	E1	SDMVQWAF	351	8		37532

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	SDNAENVDPH	172	10		37533
HPV45	E1	SFIHFLQA	482	9		37534
HPV45	E1	SFLRALKEF	448	9		37535
HPV45	E1	SFLRALKEFLK	448	11		37536
HPV45	E1	SFTDLVRNF	211	9		37537
HPV45	E1	SFTDLVRNFK	211	10		37538
HPV45	E1	SFVNSNSH	493	8		37539
HPV45	E1	SFVNSNSHF	493	9		37540
HPV45	E1	SGDTPEWIOR	326	10		37541
HPV45	E1	SGGDSSDNA	167	9		37542
HPV45	E1	SGHKKAKR	120	8		37543
HPV45	E1	SGHKKAKRR	120	9		37544
HPV45	E1	SGHKKAKRRLF	120	11		37545
HPV45	E1	SGYGCSEVEA	135	10		37546
HPV45	E1	SGYGCSEVEAA	135	11		37547
HPV45	E1	SICEQAEQETA	56	11		37548
HPV45	E1	SITELKELLQA	183	11		37549
HPV45	E1	SLNSGHKK	117	8		37550
HPV45	E1	SLNSGHKKA	117	9		37551
HPV45	E1	SLNSGHKKAK	117	10		37552
HPV45	E1	SLNSGHKKAKR	117	11		37553
HPV45	E1	SSDNAENVDPH	171	11		37554
HPV45	E1	SSGGDSSDNA	166	10		37555
HPV45	E1	SSVAALYWY	307	9		37556
HPV45	E1	SSVAALYWYR	307	10		37557
HPV45	E1	SVAALYWY	308	8		37558
HPV45	E1	SVAALYWYR	308	9	2.9000	37559
HPV45	E1	SVDTDLSR	104	9		37560
HPV45	E1	TAQALFHA	65	8		37561
HPV45	E1	TCMLIEPPK	296	9		37562
HPV45	E1	TCMLIEPPKLR	296	11		37563
HPV45	E1	TCTDWVMA	225	8		37564
HPV45	E1	TCTDWVMAIF	225	10		37565
HPV45	E1	TCWTYFDNY	520	9		37566
HPV45	E1	TCWTYFDNYMR	520	11		37567
HPV45	E1	TDESDMAF	363	8		37568
HPV45	E1	TDESDMAFQY	363	10		37569
HPV45	E1	TDESDMAFQYA	363	11		37570
HPV45	E1	TDLVRNFK	213	8		37571
HPV45	E1	TDLVRNFKSDK	213	11		37572
HPV45	E1	TDTGSDMVDf	41	10		37573
HPV45	E1	TDWVMAIF	227	8		37574
HPV45	E1	TFKCVTGQNR	631	11		37575
HPV45	E1	TFPIAFPF	580	8		37576
HPV45	E1	TPPHAFPFDK	580	10		37577
HPV45	E1	TGCNGWFF	12	8		37578

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	TGKSYFGMSF	474	10		37579
HPV45	E1	TGSDMVDF	43	8		37580
HPV45	E1	TLIKPATLY	246	9		37581
HPV45	E1	TLIKPATLYA	246	10		37582
HPV45	E1	TLIKPATLYAH	246	11		37583
HPV45	E1	TSNIDPAK	558	8		37584
HPV45	E1	TSNIDPAKDNK	558	11		37585
HPV45	E1	TTCTDWVMA	224	9		37586
HPV45	E1	TTCTDWVMAIF	224	11		37587
HPV45	E1	TVAEGFKTLIK	239	11		37588
HPV45	E1	TVAKGLSTLLH	282	11		37589
HPV45	E1	TVFTFPHA	577	8		37590
HPV45	E1	TVFTFPHAF	577	9		37591
HPV45	E1	TVFTFPHAFPF	577	11		37592
HPV45	E1	VAALYWYR	309	8		37593
HPV45	E1	VAEGFKTLIK	240	10		37594
HPV45	E1	VAKGLSTLLH	283	10		37595
HPV45	E1	VAMLDDATH	511	9		37596
HPV45	E1	VDPHCSITELK	178	11		37597
HPV45	E1	VDIDLSPR	105	8		37598
HPV45	E1	VFKDIYGLSF	203	10		37599
HPV45	E1	VFTFPHAF	578	8		37600
HPV45	E1	VFTFPHAFPF	578	10		37601
HPV45	E1	VISDDEDETA	31	10		37602
HPV45	E1	VLHLKRRK	81	8		37603
HPV45	E1	VLHLKRRKF	81	9		37604
HPV45	E1	VLHLKRRKFA	81	10		37605
HPV45	E1	VLILALLR	266	8		37606
HPV45	E1	VLILALLRY	266	9		37607
HPV45	E1	VLILALLRYK	266	10		37608
HPV45	E1	VMCRIYKR	400	8		37609
HPV45	E1	VMCRHYKRA	400	9		37610
HPV45	E1	VMCRHYKRAQK	400	11		37611
HPV45	E1	VSGDTPEWIQR	325	11		37612
HPV45	E1	VTVFTFPH	576	8		37613
HPV45	E1	VTVFTFPHA	576	9		37614
HPV45	E1	VTVFTFPHAF	576	10		37615
HPV45	E1	WFFVETIVEK	17	10		37616
HPV45	E1	WFFVETIVEKK	17	11		37617
HPV45	E1	WGVILALLR	264	10		37618
HPV45	E1	WGVILALLRY	264	11		37619
HPV45	E1	WIKYRCSK	418	8		37620
HPV45	E1	WIQLTIQH	332	10		37621
HPV45	E1	WLEPLADTK	502	9		37622
HPV45	E1	WLEPLADTKVA	502	11		37623
HPV45	E1	WTYFDNYMR	522	9		37624

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E1	WTFDNYMRNA	522	11		37625
HPV45	E1	YAHQCLDCK	254	10		37626
HPV45	E1	YAQLADCNNA	372	11		37627
HPV45	E1	YFDNYMRNA	524	9		37628
HPV45	E1	YFGMSFIH	478	8		37629
HPV45	E1	YFGMSHIHF	478	9		37630
HPV45	E1	YGCSEVEA	137	8		37631
HPV45	E1	YGCSEVEAA	137	9		37632
HPV45	E1	YGLSFTDLVR	208	10		37633
HPV45	E1	YGPANTGK	469	8		37634
HPV45	E1	YGPANTGKSY	469	10		37635
HPV45	E1	YGPANTGKSYF	469	11		37636
HPV45	E1	YLESRVTVF	571	9		37637
HPV45	E1	YLESRVTVFTF	571	11		37638
HPV45	E1	YLKDCAVMCR	394	10		37639
HPV45	E1	YLKDCAVMCRH	394	11		37640
HPV45	E2	AACVSYWGVY	156	10		37641
HPV45	E2	AACVSYWGVY	156	11		37642
HPV45	E2	ACVSYWGVY	157	9		37643
HPV45	E2	ACVSYWGVY	157	10		37644
HPV45	E2	AIELQMALK	78	9		37645
HPV45	E2	AILFTAREH	47	9		37646
HPV45	E2	ALKGLAQSK	84	9		37647
HPV45	E2	ALKGLAQSKY	84	10		37648
HPV45	E2	ALQDKILDH	16	9		37649
HPV45	E2	ALQDKILDHY	16	10		37650
HPV45	E2	ASTSTPKTA	226	9		37651
HPV45	E2	ASVGTGPKPH	234	9		37652
HPV45	E2	ATQIVRQLQH	216	10		37653
HPV45	E2	ATQIVRQLQHA	216	11		37654
HPV45	E2	CFKKGGKTVH	115	10		37655
HPV45	E2	CGLTEQHH	254	8		37656
HPV45	E2	CGLTEQHIGR	254	10		37657
HPV45	E2	CLRYRLRK	305	8		37658
HPV45	E2	CLRYRLRKY	305	9		37659
HPV45	E2	CLRYRLRKYA	305	10		37660
HPV45	E2	CMNYVVVWDSIY	134	11		37661
HPV45	E2	CSGNTTPIII	286	10		37662
HPV45	E2	CSSTSNK	274	8		37663
HPV45	E2	CSSTSNKR	274	9		37664
HPV45	E2	CSSTSNKKR	274	10		37665
HPV45	E2	CSSTSNKKRR	274	11		37666
HPV45	E2	CSTSDDTVSA	207	10		37667
HPV45	E2	CVSYWGVY	158	8		37668
HPV45	E2	CVSYWGVY	158	9		37669
HPV45	E2	CVSYWGVYIK	158	11		37670

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E2	DDTVSATQIVR	211	11		37671
HPV45	E2	DGDTTYYVQF	169	10		37672
HPV45	E2	DGDTTYYVQFK	169	11		37673
HPV45	E2	DGNKDNCMNY	128	10		37674
HPV45	E2	DINSQISY	31	8		37675
HPV45	E2	DSKDINSQISY	28	11		37676
HPV45	E2	DTTYYVQF	171	8		37677
HPV45	E2	DTTYYVQFK	171	9		37678
HPV45	E2	DTVSAQIVR	212	10		37679
HPV45	E2	ELQMALKGLA	80	10		37680
HPV45	E2	ELWNTGPSQCF	106	11		37681
HPV45	E2	ESLSERLSA	8	9		37682
HPV45	E2	ETGIWDKTA	148	9		37683
HPV45	E2	ETGIWDKTA	148	10		37684
HPV45	E2	FDGNKDNCMNY	127	11		37685
HPV45	E2	FTAREHGHTK	50	10		37686
HPV45	E2	GDKNLSKCLR	298	10		37687
HPV45	E2	GDKNLSKCLRY	298	11		37688
HPV45	E2	GDTTYYVQF	170	9		37689
HPV45	E2	GDTTYYVQFK	170	10		37690
HPV45	E2	GGKTVHVV	119	8		37691
HPV45	E2	GGKTVHVF	119	9		37692
HPV45	E2	GIWDKTA	150	8		37693
HPV45	E2	GLTEQHHGR	255	9		37694
HPV45	E2	GTPKPIHQTPA	237	11		37695
HPV45	E2	HASTSTPK	225	8		37696
HPV45	E2	HASTSTPKTA	225	10		37697
HPV45	E2	HGITKLNH	55	8		37698
HPV45	E2	HGRVNTTHVH	261	9		37699
HPV45	E2	HIQTPATK	242	8		37700
HPV45	E2	HIQTPATKR	242	9		37701
HPV45	E2	HIQTPATKRPR	242	11		37702
HPV45	E2	HLKGDKNLSK	295	10		37703
HPV45	E2	HVYFDGNK	124	8		37704
HPV45	E2	IHLKGDK	293	8		37705
HPV45	E2	ILDHYENDSK	21	10		37706
HPV45	E2	ILFTAREH	48	8		37707
HPV45	E2	ISKSKAIHK	70	8		37708
HPV45	E2	ISKSKAHKA	70	9		37709
HPV45	E2	ISYWQLIR	36	8		37710
HPV45	E2	ITETGIWDK	146	9		37711
HPV45	E2	ITETGIWDKTA	146	11		37712
HPV45	E2	IVRQLQHA	219	8		37713
HPV45	E2	KAHKAIELQMA	74	11		37714
HPV45	E2	KAIELQMA	77	8		37715
HPV45	E2	KAIELQMALK	77	10		37716

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E2	KCLRYRLR	304	8		37717
HPV45	E2	KCLRYRLRK	304	9		37718
HPV45	E2	KCLRYRLRKY	304	10		37719
HPV45	E2	KCLRYRLRKYA	304	11		37720
HPV45	E2	KDGDITTY	168	8		37721
HPV45	E2	KDGDITTYVQF	168	11		37722
HPV45	E2	KDINSQISY	30	9		37723
HPV45	E2	KGDKNLSK	297	8		37724
HPV45	E2	KGDKNLSKCLR	297	11		37725
HPV45	E2	KGGKTVHVY	118	9		37726
HPV45	E2	KGGKTVHVF	118	10		37727
HPV45	E2	KGLAQSKY	86	8		37728
HPV45	E2	KILDHYENDSK	20	11		37729
HPV45	E2	KTAACVSY	154	8		37730
HPV45	E2	KTASVGTGPK	232	9		37731
HPV45	E2	KTASVGTGPKPH	232	11		37732
HPV45	E2	KTIVHYVFDGNK	121	11		37733
HPV45	E2	LCSSTSNNK	273	9		37734
HPV45	E2	LCSSTSNNKR	273	10		37735
HPV45	E2	LCSSTSNNKRR	273	11		37736
HPV45	E2	LDHYENDSK	22	9		37737
HPV45	E2	LFTAREHGITK	49	11		37738
HPV45	E2	LIRLENALF	41	10		37739
HPV45	E2	LLCSSTSNNK	272	10		37740
HPV45	E2	LLCSSTSNNKR	272	11		37741
HPV45	E2	LSALQDKILDH	14	11		37742
HPV45	E2	LSERLSALQDK	10	11		37743
HPV45	E2	LTEQHHGR	256	8		37744
HPV45	E2	LTVYNSEVQR	336	11		37745
HPV45	E2	MALKGLAQSK	83	10		37746
HPV45	E2	MALKGLAQSKY	83	11		37747
HPV45	E2	MCSTSDDTVSA	206	11		37748
HPV45	E2	NAILFTAR	46	8		37749
HPV45	E2	NAILFTAREH	46	10		37750
HPV45	E2	NISKSAH	69	8		37751
HPV45	E2	NISKSAHK	69	9		37752
HPV45	E2	NISKSAIHA	69	10		37753
HPV45	E2	NSEVQRNTF	341	9		37754
HPV45	E2	NSLKCLRY	301	8		37755
HPV45	E2	NSLKCLRYR	301	9		37756
HPV45	E2	NSLKCLRYRLR	301	11		37757
HPV45	E2	NSNTWEVQY	187	9		37758
HPV45	E2	NSQISYWQLIR	33	11		37759
HPV45	E2	NSVQISVGY	357	9		37760
HPV45	E2	NTEPSQCF	109	8		37761
HPV45	E2	NTEPSQCFK	109	9		37762

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E2	SSTSNNKRRK	275	10		37809
HPV45	E2	SSTWHWTGCNK	321	11		37810
HPV45	E2	STSDDTVSA	208	9		37811
HPV45	E2	STSNKRR	276	8		37812
HPV45	E2	STSNKRRK	276	9		37813
HPV45	E2	STSTPKTA	227	8		37814
HPV45	E2	STWHWTGCNK	322	10		37815
HPV45	E2	SVGTPKPH	235	8		37816
HPV45	E2	SVQISVGY	358	8		37817
HPV45	E2	TAACVSYWGVY	155	11		37818
HPV45	E2	TAREHGITK	51	9		37819
HPV45	E2	TASVGTPK	233	8		37820
HPV45	E2	TASVGTPKPH	233	10		37821
HPV45	E2	TGILTVTY	333	8		37822
HPV45	E2	TGIWDKTA	149	8		37823
HPV45	E2	TGIWDKTA	149	9		37824
HPV45	E2	TSDDTVSA	209	8		37825
HPV45	E2	TSNNKRRK	277	8		37826
HPV45	E2	TTPIIHLK	290	8		37827
HPV45	E2	TTPIIHLKGDGK	290	11		37828
HPV45	E2	TTYVYQFK	172	8		37829
HPV45	E2	TVHVFYDGNK	122	10		37830
HPV45	E2	TVSATQIVR	213	9		37831
HPV45	E2	TVTYNSEVQR	337	10		37832
HPV45	E2	VCSGNTTPIIH	285	11		37833
HPV45	E2	VSATQIVR	214	8		37834
HPV45	E2	VSYWGVVY	159	8		37835
HPV45	E2	VSYWGVVYIK	159	10		37836
HPV45	E2	VTYNSEVQR	338	9		37837
HPV45	E2	VVPPINISK	64	9		37838
HPV45	E2	VVPPINISKS	64	11		37839
HPV45	E2	VVWDSIY	138	8		37840
HPV45	E2	WDKTAACVSY	152	10		37841
HPV45	E2	YGNSTWEVQY	185	11		37842
HPV45	E2	YKDGDTTY	166	9		37843
HPV45	E2	YIKDGDITY	166	10		37844
HPV45	E2	YITETGIWDK	145	10		37845
HPV45	E2	YSEISSTWH	317	9		37846
HPV45	E2	YVQFKSECEK	175	10		37847
HPV45	E2	YVQFKSECEKY	175	11		37848
HPV45	E2	YVWDSIY	137	8		37849
HPV45	E2	YVWDSIY	137	9		37850
HPV45	E2	AACHKCIDF	63	9		37851
HPV45	E6	AACHKCIDFY	63	10		37852
HPV45	E6	ACHKCIDF	64	8		37853
HPV45	E6	ACIKCIDFY	64	9		37854

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E6	ACIKCIDFYSR	64	11		37855
HPV45	E6	ACVYCKATLER	31	11		37856
HPV45	E6	AFKDLFIVY	48	9		37857
HPV45	E6	AFKDLFIVYR	48	10		37858
HPV45	E6	ATLERTEVY	37	9		37859
HPV45	E6	ATLERTEVYQF	37	11		37860
HPV45	E6	CCDQARQER	141	9		37861
HPV45	E6	CCDQARQERLR	141	11		37862
HPV45	E6	CDQARQER	142	8		37863
HPV45	E6	CDQARQERLR	142	10		37864
HPV45	E6	CDQARQERLRR	142	11		37865
HPV45	E6	CIAYAACH	59	8		37866
HPV45	E6	CIAYAACHK	59	9		37867
HPV45	E6	CIDFYSRIR	68	9	0.0001	37868
HPV45	E6	CLRCQKPLNPA	105	11		37869
HPV45	E6	CVYCKATLER	32	10		37870
HPV45	E6	DCIAYAACH	58	9		37871
HPV45	E6	DCIAYAACHIK	58	10		37872
HPV45	E6	DDPTQRPY	5	8		37873
HPV45	E6	DDPTQRPYK	5	9		37874
HPV45	E6	DFYSRIRREL	70	10	0.0002	37875
HPV45	E6	DFYSRIRRELRY	70	11		37876
HPV45	E6	DLFIVYRDCIA	51	11		37877
HPV45	E6	DVSIACVY	27	8		37878
HPV45	E6	DVSIACVYCK	27	10		37879
HPV45	E6	DVSIACVYCKA	27	11		37880
HPV45	E6	ELRYYSNSVY	77	10		37881
HPV45	E6	ELYNLLIR	97	8		37882
HPV45	E6	ELYNLLIRCLR	97	11		37883
HPV45	E6	EVYQFAFK	43	8		37884
HPV45	E6	EVYQFAFKDLF	43	11		37885
HPV45	E6	FAFKDLFIVY	47	10		37886
HPV45	E6	FAFKDLFIVYR	47	11		37887
HPV45	E6	FDDPTQRPY	4	9		37888
HPV45	E6	FDDPTQRPYK	4	10		37889
HPV45	E6	FIVYRDCIA	53	9		37890
HPV45	E6	FIVYRDCIAY	53	10		37891
HPV45	E6	FIVYRDCIAYA	53	11		37892
HPV45	E6	HLKDKRRF	120	8		37893
HPV45	E6	HLKDKRRFH	120	9		37894
HPV45	E6	HSIAGQYR	128	8		37895
HPV45	E6	IACVYCKA	30	8		37896
HPV45	E6	IAYAACHIK	60	8		37897
HPV45	E6	IDFYSRIR	69	8		37898
HPV45	E6	IDFYSRIRREL	69	11		37899
HPV45	E6	IVYRDCIA	54	8		37900

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E6	IVYRDCIAY	54	9		37901
HPV45	E6	IVYRDCIAYA	54	10		37902
HPV45	E6	IVYRDCIAYAA	54	11		37903
HPV45	E6	KATLERTEVY	36	10		37904
HPV45	E6	KCIDFYSR	67	8		37905
HPV45	E6	KCIDFYSRIR	67	10		37906
HPV45	E6	KDKRRFIISIA	122	10		37907
HPV45	E6	KDLFIVYR	50	8		37908
HPV45	E6	KITNTELY	92	8		37909
HPV45	E6	LFIVYRDCIA	52	10		37910
HPV45	E6	LFIVYRDCIAY	52	11		37911
HPV45	E6	LIRCLRCQK	102	9	0.0190	37912
HPV45	E6	LLIRCLRCQK	101	10	0.0470	37913
HPV45	E6	MARFDDPTQR	1	10		37914
HPV45	E6	NLLIRCLR	100	8		37915
HPV45	E6	NLLIRCLRCQK	100	11		37916
HPV45	E6	NSVYGETLEK	83	10		37917
HPV45	E6	NTCCDQAR	139	8		37918
HPV45	E6	NTCCDQARQER	139	11		37919
HPV45	E6	NTELYNLLIR	95	10		37920
HPV45	E6	NTSLQDVSA	22	10		37921
HPV45	E6	PAEKRRHLK	114	9		37922
HPV45	E6	PAEKRRHLKDK	114	11		37923
HPV45	E6	PLNPAEKR	111	8		37924
HPV45	E6	PLNPAEKRR	111	9		37925
HPV45	E6	PLNPAEKRRH	111	10		37926
HPV45	E6	QARQERLR	144	8		37927
HPV45	E6	QARQERLRR	144	9		37928
HPV45	E6	QARQERLRRR	144	10		37929
HPV45	E6	QARQERLRRRR	144	11		37930
HPV45	E6	QCNTCCDQA	137	9		37931
HPV45	E6	QCNTCCDQAR	137	10		37932
HPV45	E6	QDVSIACVY	26	9		37933
HPV45	E6	QDVSIACVYCK	26	11		37934
HPV45	E6	QFAFKDLF	46	8		37935
HPV45	E6	QFAFKDLFIVY	46	11		37936
HPV45	E6	RCQKPLNPA	107	9		37937
HPV45	E6	RCQKPLNPAEK	107	11		37938
HPV45	E6	RDCIAYAA	57	8		37939
HPV45	E6	RDCIAYAAACH	57	10		37940
HPV45	E6	RDCIAYAACIHK	57	11		37941
HPV45	E6	RFDDPTQR	3	8		37942
HPV45	E6	RFDDPTQRPY	3	10		37943
HPV45	E6	RFDDPTQRPYK	3	11		37944
HPV45	E6	RFISIAGQY	126	9		37945
HPV45	E6	RFHSIAGQYR	126	10		37946

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E6	RGQNTCCDQA	135	11		37947
HPV45	E6	RIRELRY	74	8		37948
HPV45	E6	RTEVYQFA	41	8		37949
HPV45	E6	RTEVYQFAF	41	9		37950
HPV45	E6	RTEVYQFAFK	41	10		37951
HPV45	E6	SIACVYCK	29	8		37952
HPV45	E6	SIACVYCKA	29	9		37953
HPV45	E6	SLQDVSI	24	8		37954
HPV45	E6	SLQDVSIACVY	24	11		37955
HPV45	E6	SVYGETLEK	84	9		37956
HPV45	E6	TCCDQARQER	140	10		37957
HPV45	E6	TLEKITNTELY	89	11		37958
HPV45	E6	TLERTEVY	38	8		37959
HPV45	E6	TLERTEVYQF	38	10		37960
HPV45	E6	TLERTEVYQFA	38	11		37961
HPV45	E6	TSLQDVSI	23	9		37962
HPV45	E6	VSIACVYCK	28	9		37963
HPV45	E6	VSIACVYCKA	28	10		37964
HPV45	E6	YAACHKCIDF	62	10		37965
HPV45	E6	YAACHKCIDFY	62	11		37966
HPV45	E6	YCKATLER	34	8		37967
HPV45	E6	YSRIRELR	72	8		37968
HPV45	E6	YSRIRELRY	72	9		37969
HPV45	E6	YSRIRELRY	72	10		37970
HPV45	E7	ADDLRTLQQLF	81	11		37971
HPV45	E7	ADGVSHIAQLPA	42	11		37972
HPV45	E7	ATLQEIHL	6	9		37973
HPV45	E7	CVCKCKDGR	64	9		37974
HPV45	E7	DDLRTLQQLF	82	10		37975
HPV45	E7	DGVSHIAQLPA	43	10		37976
HPV45	E7	DGVSHIAQLPAR	43	11		37977
HPV45	E7	DLRTLQQLF	83	9		37978
HPV45	E7	EADGVSHA	41	8		37979
HPV45	E7	ELDPVDLLCY	20	10		37980
HPV45	E7	ELTVESSA	74	8		37981
HPV45	E7	ESEENDEA	34	9		37982
HPV45	E7	ESSADDLR	78	8		37983
HPV45	E7	GVSHIAQLPA	44	9		37984
HPV45	E7	GVSHIAQLPAR	44	10		37985
HPV45	E7	GVSHIAQLPARR	44	11		37986
HPV45	E7	HAQLPARR	47	8		37987
HPV45	E7	HAQLPARRA	47	9		37988
HPV45	E7	ILCVCKCKDGR	62	11		37989
HPV45	E7	KILCVCKCK	61	8		37990
HPV45	E7	LCVCKCKDGR	63	10		37991
HPV45	E7	LDPVDLLCY	21	9		37992

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	E7	LFLSTLSF	90	8		37993
HPV45	E7	LSEEEENDEA	32	11		37994
HPV45	E7	LSFVCPWCA	95	9	0.0005	37995
HPV45	E7	LTVESSADDLR	75	11		37996
HPV45	E7	NDEADGVSH	39	9		37997
HPV45	E7	NDEADGVSHA	39	10		37998
HPV45	E7	PARRAEPQR	51	9		37999
HPV45	E7	PARRAEPQRH	51	10		38000
HPV45	E7	PARRAEPQRHK	51	11		38001
HPV45	E7	QLFLSTLSF	89	9		38002
HPV45	E7	QLPARRAEPQR	49	11		38003
HPV45	E7	RAEPQRIK	54	8		38004
HPV45	E7	RATLQEIVLH	5	10		38005
HPV45	E7	RIELTVESSA	72	10		38006
HPV45	E7	SFVCPWCA	96	8		38007
HPV45	E7	STLSFVCPWCA	93	11		38008
HPV45	E7	TLQEIVLH	7	8		38009
HPV45	E7	TLSFVCPWCA	94	10		38010
HPV45	E7	TVESSADDLR	76	10		38011
HPV45	E7	VCKCKDGR	65	8		38012
HPV45	E7	VSHAQLPA	45	8		38013
HPV45	E7	VSHAQLPAR	45	9		38014
HPV45	E7	VSHIAQLPARR	45	10		38015
HPV45	E7	VSHAQLPARRA	45	11		38016
HPV45	L1	AASTSTASR	517	9		38017
HPV45	L1	AASTSTASRPA	517	11		38018
HPV45	L1	AATAVITQDVR	161	11		38019
HPV45	L1	ACVGMEIGR	128	9		38020
HPV45	L1	ADPYGDSMF	266	9		38021
HPV45	L1	ADPYGDSMFF	266	10		38022
HPV45	L1	AGNKQAVPK	83	9		38023
HPV45	L1	AIGEHWAK	191	8		38024
HPV45	L1	ALDPNKF	103	8		38025
HPV45	L1	ALWRPSDSTVY	28	11		38026
HPV45	L1	AMDFSTLQDTK	234	11		38027
HPV45	L1	ASRPAKRVR	523	9		38028
HPV45	L1	ASRPAKRVRIR	523	11		38029
HPV45	L1	ASTQNVPNTY	375	11		38030
HPV45	L1	ASTSTASR	518	8		38031
HPV45	L1	ASTSTASRPA	518	10		38032
HPV45	L1	ASTSTASRPAK	518	11		38033
HPV45	L1	ATAVITQDVR	162	10		38034
HPV45	L1	AVITQDVR	164	8		38035
HPV45	L1	AVPKVSAY	88	8		38036
HPV45	L1	AVPKVSAYQY	88	10		38037
HPV45	L1	AVPKVSAYQYR	88	11		38038

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	CILGCVPA	184	8		38039
HPV45	L1	CLRREQLF	276	8		38040
HPV45	L1	CLRREQLFA	276	9		38041
HPV45	L1	CLRREQLFAR	276	10		38042
HPV45	L1	CLRREQLFARH	276	11		38043
HPV45	L1	CVGMEIGR	129	8		38044
HPV45	L1	CVPAIGE	188	8		38045
HPV45	L1	CVPAIGEHW	188	10		38046
HPV45	L1	CVPAIGEHWAK	188	11		38047
HPV45	L1	DCPPELEK	211	8		38048
HPV45	L1	DDTESA	154	8		38049
HPV45	L1	DDTESA	154	9		38050
HPV45	L1	DDTESA	154	11		38051
HPV45	L1	DDYVSR	51	10		38052
HPV45	L1	DDYVSR	51	11		38053
HPV45	L1	DFSTLQ	236	9		38054
HPV45	L1	DGDMVDTGY	224	9		38055
HPV45	L1	DGDMVDTGYGA	224	11		38056
HPV45	L1	DICQ	250	8		38057
HPV45	L1	DICQ	250	9		38058
HPV45	L1	DLDQYPLGR	488	9		38059
HPV45	L1	DLDQYPLGRK	488	10		38060
HPV45	L1	DLDQYPLGRKF	488	11		38061
HPV45	L1	DLYIKGTSA	301	9		38062
HPV45	L1	DMVDTGYGA	226	9		38063
HPV45	L1	DSMFFCLR	271	8		38064
HPV45	L1	DSMFFCLR	271	9		38065
HPV45	L1	DSQLFNKPY	332	9		38066
HPV45	L1	DSTIYNPETQR	114	11		38067
HPV45	L1	DTESAHAA	155	8		38068
HPV45	L1	DTESAHAA	155	10		38069
HPV45	L1	DTGYGAMDF	229	9		38070
HPV45	L1	DTTPPEKQDPY	461	11		38071
HPV45	L1	DTVPTDLY	296	8		38072
HPV45	L1	DTVPTDLYIK	296	10		38073
HPV45	L1	DTYRFVQSV	446	10		38074
HPV45	L1	DVRDNVSDY	169	10		38075
HPV45	L1	DVRDNVSDYK	169	11		38076
HPV45	L1	EDGDMVDTGY	223	10		38077
HPV45	L1	ESAHAA	157	8		38078
HPV45	L1	ETPGSCVY	313	8		38079
HPV45	L1	ETQRLVWA	121	8		38080
HPV45	L1	FARIIFWNR	283	8		38081
HPV45	L1	FARIIFWNR	283	9		38082
HPV45	L1	FCLRREQLF	275	9		38083
HPV45	L1	FCLRREQLFA	275	10		38084

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	FCLRRQLFAR	275	11		38085
HPV45	L1	FFCLRRQLF	274	10		38086
HPV45	L1	FFCLRRQLFA	274	11		38087
HPV45	L1	FGLPDSTIY	110	9		38088
HPV45	L1	FLKNVNVF	14	8		38089
HPV45	L1	FLKNVNVPIF	14	11		38090
HPV45	L1	FLQMALWR	24	8		38091
HPV45	L1	FLVQAGLR	498	8		38092
HPV45	L1	FLVQAGLRR	498	9		38093
HPV45	L1	FLVQAGLRRR	498	10		38094
HPV45	L1	FSSDLQY	485	8		38095
HPV45	L1	FSTLDTK	237	8		38096
HPV45	L1	FVQSVAVTCQK	450	11		38097
HPV45	L1	FVTVVDTR	359	9		38098
HPV45	L1	GAGNKQAVPK	82	10		38099
HPV45	L1	GCVPAIGE	187	9		38100
HPV45	L1	GCVPAIGEHW	187	11		38101
HPV45	L1	GDCPPLEK	210	9		38102
HPV45	L1	GDMVDTGY	225	8		38103
HPV45	L1	GDMVDTGYGA	225	10		38104
HPV45	L1	GDSMFCLR	270	9		38105
HPV45	L1	GDSMFCLRR	270	10		38106
HPV45	L1	GDTVPTDLY	295	9		38107
HPV45	L1	GDTVPTDLYIK	295	11		38108
HPV45	L1	GICWIINQLF	351	9		38109
HPV45	L1	GIGLSGHPF	141	9		38110
HPV45	L1	GIGLSGHPFY	141	10		38111
HPV45	L1	GLPDSTIY	111	8		38112
HPV45	L1	GLRRRTIGPR	503	11		38113
HPV45	L1	GLSGHPFY	143	8		38114
HPV45	L1	GLSGHPFYNK	143	10		38115
HPV45	L1	GSITSDSQLF	326	11		38116
HPV45	L1	HGHIIFLK	9	8		38117
HPV45	L1	HVEEYDLQF	396	9		38118
HPV45	L1	HVEEYDLQFIF	396	11		38119
HPV45	L1	ICQSICKY	251	8		38120
HPV45	L1	ICQSICKYPDY	251	11		38121
HPV45	L1	ICWIINQLF	352	8		38122
HPV45	L1	IFLKNVNVF	13	9		38123
HPV45	L1	IFLQMALWR	23	9		38124
HPV45	L1	IFQLCTITLTA	405	11		38125
HPV45	L1	IFYHAGSSR	59	9		38126
HPV45	L1	IGLSGHPF	142	8		38127
HPV45	L1	IGLSGHPFY	142	9		38128
HPV45	L1	IGLSGHPFYNK	142	11		38129
HPV45	L1	IGPRKRPA	510	8		38130

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	IGPRKRPA	510	9		38131
HPV45	L1	IIFLKNVNF	12	10		38132
HPV45	L1	IIFLKNVNF	11	11		38133
HPV45	L1	IYGIHIF	5	10		38134
HPV45	L1	ILGCVPAIGEH	185	11		38135
HPV45	L1	ITLTAEVMSY	411	10		38136
HPV45	L1	ITTSDSOLF	328	9		38137
HPV45	L1	ITTSDSQLFNK	328	11		38138
HPV45	L1	KDTPPEK	460	8		38139
HPV45	L1	KFGLPDSTIY	109	10		38140
HPV45	L1	KFKHYSRH	389	8		38141
HPV45	L1	KFLVQAGLR	497	9		38142
HPV45	L1	KFLVQAGLRR	497	10		38143
HPV45	L1	KFLVQAGLRRR	497	11		38144
HPV45	L1	KFSSLDQY	484	9		38145
HPV45	L1	KFWTVDLK	475	8		38146
HPV45	L1	KFWTVDLKEK	475	10		38147
HPV45	L1	KFWTVDLKEKF	475	11		38148
HPV45	L1	KGTLCKPA	198	8		38149
HPV45	L1	KGTSANMR	305	8		38150
HPV45	L1	KLDDTESA	152	8		38151
HPV45	L1	KLDDTESAH	152	9		38152
HPV45	L1	KLDDTESAHA	152	10		38153
HPV45	L1	KLDDTESAHAA	152	11		38154
HPV45	L1	KLKFWTVDLK	473	10		38155
HPV45	L1	KVSAYQYR	91	8		38156
HPV45	L1	KVSAYQYRVF	91	10		38157
HPV45	L1	KVSAYQYRVFR	91	11		38158
HPV45	L1	LCILGCVPA	183	9		38159
HPV45	L1	LCTITLTA	408	8		38160
HPV45	L1	LDDTESAH	153	8		38161
HPV45	L1	LDDTESAHA	153	9		38162
HPV45	L1	LDDTESAHAA	153	10		38163
HPV45	L1	LDICQSICK	249	9		38164
HPV45	L1	LDICQSICKY	249	10		38165
HPV45	L1	LDQYPLGR	489	8		38166
HPV45	L1	LDQYPLGRK	489	9		38167
HPV45	L1	LDQYPLGRKF	489	10		38168
HPV45	L1	LFARHFWNR	282	9		38169
HPV45	L1	LFARHFWNRA	282	10		38170
HPV45	L1	LFNKPYWLH	335	9		38171
HPV45	L1	LFNKPYWLHK	335	10		38172
HPV45	L1	LFNKPYWLIIKA	335	11		38173
HPV45	L1	LFVTVDTTR	358	10		38174
HPV45	L1	LGCVPAIGEH	186	10		38175
HPV45	L1	LGIGLSGH	140	8		38176

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	LGIGLSGIIPF	140	10		38177
HPV45	L1	LGIGLSGIIPFY	140	11		38178
HPV45	L1	LGRKFLVQA	494	9		38179
HPV45	L1	LLTVGNPY	68	8		38180
HPV45	L1	LLTVGNPYF	68	9		38181
HPV45	L1	LLTVGNPYFR	68	10		38182
HPV45	L1	LSGIIPYNK	144	9		38183
HPV45	L1	LTAEVMSY	413	8		38184
HPV45	L1	LTAEVMSYIH	413	10		38185
HPV45	L1	LTVGNPYF	69	8		38186
HPV45	L1	LTVGNPYFR	69	9		38187
HPV45	L1	LVQAGLR	499	8		38188
HPV45	L1	LVQAGLR	499	9		38189
HPV45	L1	MAHNIYGH	1	9		38190
HPV45	L1	MDFSTLQDTK	235	10		38191
HPV45	L1	MFFCLRREQLF	273	11		38192
HPV45	L1	MGDTVPTDLY	294	10		38193
HPV45	L1	MSADPYGDSMF	264	11		38194
HPV45	L1	MVDTGYGA	227	8		38195
HPV45	L1	MVDTGYGAMDF	227	11		38196
HPV45	L1	NGICWHNQLF	350	10		38197
HPV45	L1	NIYGHGIIIF	4	11		38198
HPV45	L1	NMRETPGSCVY	310	11		38199
HPV45	L1	NSSILENWNF	425	10		38200
HPV45	L1	NTDDYVSR	49	8		38201
HPV45	L1	NTYDPTKF	383	8		38202
HPV45	L1	NTYDPTKFK	383	9		38203
HPV45	L1	NTYDPTKFKH	383	10		38204
HPV45	L1	NTYDPTKFKHY	383	11		38205
HPV45	L1	NVFIPLQMA	19	10		38206
HPV45	L1	NVNVPIF	17	8		38207
HPV45	L1	PAASTSTA	516	8		38208
HPV45	L1	PAASTSTASR	516	10		38209
HPV45	L1	PAIGHWA	190	8		38210
HPV45	L1	PAIGHWAK	190	9		38211
HPV45	L1	PAKRVRIR	526	8		38212
HPV45	L1	PAKRVRIRSK	526	10		38213
HPV45	L1	PAKRVRIRSKK	526	11		38214
HPV45	L1	PDYLQMSA	259	8		38215
HPV45	L1	PDYLQMSADPY	259	11		38216
HPV45	L1	PGDCPPLLEK	209	10		38217
HPV45	L1	PIFLQMALWR	22	10		38218
HPV45	L1	PLDICQSICK	248	10		38219
HPV45	L1	PLDICQSICKY	248	11		38220
HPV45	L1	PLGIGLSGH	139	9		38221
HPV45	L1	PLGIGLSGHPIF	139	11		38222

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	PLGRKFLVQA	493	10		38223
HPV45	L1	PSGAGNKQA	80	9		38224
HPV45	L1	PTDLYIKGTSA	299	11		38225
HPV45	L1	PTIGPRKR	508	8		38226
HPV45	L1	PTIGPRKRPA	508	10		38227
HPV45	L1	PTIGPRKRPA	508	11		38228
HPV45	L1	PTKFKHYSR	387	9		38229
HPV45	L1	PTKFKHYSRH	387	10		38230
HPV45	L1	PTTSLVDY	440	9		38231
HPV45	L1	PTTSLVDYR	440	10		38232
HPV45	L1	PTTSLVDYR	440	11		38233
HPV45	L1	PVPNTYDPTK	380	10		38234
HPV45	L1	PVPNTYDPTK	380	11		38235
HPV45	L1	QAVPKVSA	87	8		38236
HPV45	L1	QAVPKVSAY	87	9		38237
HPV45	L1	QAVPKVSAYQY	87	11		38238
HPV45	L1	QDPYDKLK	468	8		38239
HPV45	L1	QDPYDKLKF	468	9		38240
HPV45	L1	QDVRDNVSDY	168	11		38241
HPV45	L1	QGHNNGICWH	346	10		38242
HPV45	L1	QLCILGCPA	182	10		38243
HPV45	L1	QLCTITLA	407	9		38244
HPV45	L1	QLFARHFWNR	281	10		38245
HPV45	L1	QLFARHFWNRA	281	11		38246
HPV45	L1	QLFNKPYWLI	334	10		38247
HPV45	L1	QLFNKPYWLHK	334	11		38248
HPV45	L1	QLFVTVVDTR	357	11		38249
HPV45	L1	QSICKYPDY	253	9		38250
HPV45	L1	QSVAVTCQK	452	8		38251
HPV45	L1	RDNVSDY	171	9		38252
HPV45	L1	RDNVSDYK	171	9		38253
HPV45	L1	RLLTVGNPY	67	9		38254
HPV45	L1	RLLTVGNPYF	67	10		38255
HPV45	L1	RLLTVGNPYFR	67	11		38256
HPV45	L1	RSTNLTCA	367	9		38257
HPV45	L1	RTSIFYIA	56	8		38258
HPV45	L1	RVALPDNPK	101	9		38259
HPV45	L1	RVALPDNPKF	101	10		38260
HPV45	L1	RVIRSKK	529	8		38261
HPV45	L1	RVVNTDDY	46	8		38262
HPV45	L1	RVVNTDDYVSR	46	11		38263
HPV45	L1	RVVPSGAGNK	77	10		38264
HPV45	L1	SADPYGDSMF	265	10		38265
HPV45	L1	SADPYGDSMFF	265	11		38266
HPV45	L1	SAYQYRVF	93	8		38267
HPV45	L1	SAYQYRVFR	93	9		38268

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	SAYQYRVFRVA	93	11		38269
HPV45	L1	SDLDOYPLGR	487	10		38270
HPV45	L1	SDLDOYPLGRK	487	11		38271
HPV45	L1	SDSQLFNK	331	8		38272
HPV45	L1	SDSQLFNKPY	331	10		38273
HPV45	L1	SGAGNKQA	81	8		38274
HPV45	L1	SGAGNKQAVPK	81	11		38275
HPV45	L1	SGHPFYNK	145	8		38276
HPV45	L1	SICKYPDY	254	8		38277
HPV45	L1	SIFYHAGSSR	58	10		38278
HPV45	L1	SILENWNF	427	8		38279
HPV45	L1	SITSDSQLF	327	10		38280
HPV45	L1	SLVDTYRF	443	8		38281
HPV45	L1	SMFFCLRR	272	8		38282
HPV45	L1	SSDLDOYPLGR	486	11		38283
HPV45	L1	SSILENWNF	426	9		38284
HPV45	L1	SSRLLTGPNPY	65	11		38285
HPV45	L1	STASRPAC	521	8		38286
HPV45	L1	STASRPACR	521	9		38287
HPV45	L1	STASRPACRVR	521	11		38288
HPV45	L1	STIYNPETQR	115	10		38289
HPV45	L1	STNLTCA	368	8		38290
HPV45	L1	STQNPVPNTY	376	10		38291
HPV45	L1	STSTASRPA	519	9		38292
HPV45	L1	STSTASRPAC	519	10		38293
HPV45	L1	STSTASRPACR	519	11		38294
HPV45	L1	STVYLPSPVA	35	11		38295
HPV45	L1	SVARVNTDDY	43	11		38296
HPV45	L1	SVAVTCQK	453	8		38297
HPV45	L1	TAEVMSYIH	414	9		38298
HPV45	L1	TASRPACR	522	8		38299
HPV45	L1	TASRPACRVR	522	10		38300
HPV45	L1	TAVITQDVR	163	9		38301
HPV45	L1	TCQKDTTPPEK	457	11		38302
HPV45	L1	TDDYVSRTSIF	50	11		38303
HPV45	L1	TDLYIKGTA	300	10		38304
HPV45	L1	TGYGAMDF	230	8		38305
HPV45	L1	TIGPRKRPA	509	9		38306
HPV45	L1	TIGPRKRPA	509	10		38307
HPV45	L1	TITLAEVMSY	410	11		38308
HPV45	L1	TIYNPETQR	116	9		38309
HPV45	L1	TLTAEVMSY	412	9		38310
HPV45	L1	TLTAEVMSYIH	412	11		38311
HPV45	L1	TSDSQLFNK	330	9		38312
HPV45	L1	TSDSQLFNKPY	330	11		38313
HPV45	L1	TSIFYHAGSSR	57	11		38314

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	TSLVDTYR	442	8		38315
HPV45	L1	TSLVDTYRF	442	9		38316
HPV45	L1	TSTASRPA	520	8		38317
HPV45	L1	TSTASRPAK	520	9		38318
HPV45	L1	TSTASRPAKR	520	10		38319
HPV45	L1	TTPEKQDPY	462	10		38320
HPV45	L1	TTSTNLTLCA	365	11		38321
HPV45	L1	TTSDSQLF	329	8		38322
HPV45	L1	TTSDSQLFNK	329	10		38323
HPV45	L1	TTSLVDTY	441	8		38324
HPV45	L1	TTSLVDTYR	441	9		38325
HPV45	L1	TTSLVDTYRF	441	10		38326
HPV45	L1	TVDLKEKF	478	8		38327
HPV45	L1	TVGNPYFR	70	8		38328
HPV45	L1	TVPTDLYIK	297	9		38329
HPV45	L1	TVYLPSPSA	36	10		38330
HPV45	L1	TVYLPSPSVAR	36	11		38331
HPV45	L1	VALPDPNK	102	8		38332
HPV45	L1	VALPDPNKF	102	9		38333
HPV45	L1	VARVNTDDY	44	10		38334
HPV45	L1	VDGYGAMDF	228	10		38335
HPV45	L1	VDYRFVQSA	445	11		38336
HPV45	L1	VFPIFQMA	20	9		38337
HPV45	L1	VFRVALDPNK	99	11		38338
HPV45	L1	VMGDTVPTDLY	293	11		38339
HPV45	L1	VSAYQYRVF	92	9		38340
HPV45	L1	VSAYQYRVFR	92	10		38341
HPV45	L1	VSRTSIFY	54	8		38342
HPV45	L1	VSRTSIFYH	54	9		38343
HPV45	L1	VSRTSIFYHA	54	10		38344
HPV45	L1	VTVVDTR	360	8		38345
HPV45	L1	VVNTDDYVSR	47	10		38346
HPV45	L1	VVPSGAGNK	78	9		38347
HPV45	L1	VVPSGAGNKQA	78	11		38348
HPV45	L1	WACVGMEIGR	127	10		38349
HPV45	L1	WAKGTLCCK	196	8		38350
HPV45	L1	WAKGTLCCKPA	196	10		38351
HPV45	L1	WLHKAQGH	341	8		38352
HPV45	L1	WTVDLKEK	477	8		38353
HPV45	L1	WTVDLKEKF	477	9		38354
HPV45	L1	YDPTKFKII	385	8		38355
HPV45	L1	YDPTKFKIHY	385	9		38356
HPV45	L1	YDPTKFKIYSR	385	11		38357
HPV45	L1	YFRVVPSPA	75	9		38358
HPV45	L1	YGDSMFFCLR	269	10		38359
HPV45	L1	YGDSMFFCLRR	269	11		38360

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L1	YGHGIIIF	7	8		38361
HPV45	L1	YGHGIIIFLK	7	10		38362
HPV45	L1	YIKGTSANMR	303	10		38363
HPV45	L1	YLPPPSVA	38	8		38364
HPV45	L1	YLPPPSVAR	38	9		38365
HPV45	L1	YMQMSADPY	261	9		38366
HPV45	L1	YSRHVEEY	393	8		38367
HPV45	L1	YVSRISIF	53	8		38368
HPV45	L1	YVSRISIFY	53	9		38369
HPV45	L1	YVSRISIFYH	53	10		38370
HPV45	L1	YVSRISIFYHA	53	11		38371
HPV45	L2	AARRKRASA	6	9		38372
HPV45	L2	ALSSRRGTVR	286	10		38373
HPV45	L2	ALSSRRGTVR	286	11		38374
HPV45	L2	ASATDLYR	12	8		38375
HPV45	L2	ASATDLYRTCK	12	11		38376
HPV45	L2	ASGAPVPTF	114	9		38377
HPV45	L2	ASTTPSTIH	357	9		38378
HPV45	L2	ASTTPSTIHK	357	10		38379
HPV45	L2	ASTTYYIGH	423	10		38380
HPV45	L2	ATDLYRTCK	14	9		38381
HPV45	L2	ATMFTRSGK	303	9		38382
HPV45	L2	ATNDSOLF	340	8		38383
HPV45	L2	ATNDSOLFVY	340	11		38384
HPV45	L2	DFMDIIRLH	275	9		38385
HPV45	L2	DFMDIIRLHR	275	10		38386
HPV45	L2	DIURLHRPA	278	9		38387
HPV45	L2	DLFDVYADF	345	9		38388
HPV45	L2	DSDFMIDIR	273	9		38389
HPV45	L2	DSDFMIDIRLH	273	11		38390
HPV45	L2	DSDLFDVY	343	8		38391
HPV45	L2	DSDLFDVYA	343	9		38392
HPV45	L2	DSDLFDVYADF	343	11		38393
HPV45	L2	DSSVVASGA	109	9		38394
HPV45	L2	DSVSISSSF	148	10		38395
HPV45	L2	DVYADFPPPA	348	10		38396
HPV45	L2	EDSSVVASGA	108	10		38397
HPV45	L2	EGTTLADK	36	8		38398
HPV45	L2	EIELQPLISA	331	10		38399
HPV45	L2	EIPLQTFA	194	8		38400
HPV45	L2	EITSSGTTTPA	129	11		38401
HPV45	L2	ELQPLISA	333	8		38402
HPV45	L2	FADGFVAA	456	8		38403
HPV45	L2	FDVYADFPPPA	347	11		38404
HPV45	L2	FFADGFVA	455	8		38405
HPV45	L2	FFADGFVAA	455	9		38406

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L2	FLTHPSSLVTF	241	11		38407
HPV45	L2	FMDIIRLH	276	8		38408
HPV45	L2	FMDIIRLHR	276	9		38409
HPV45	L2	FMDIIRLHRPA	276	11		38410
HPV45	L2	FSRLGQRA	296	8		38411
HPV45	L2	FSRLGQRATMF	296	11		38412
HPV45	L2	FTRSGKQIGGR	306	11		38413
HPV45	L2	FVGTPTSGSH	181	10		38414
HPV45	L2	GGRVHFYH	314	8		38415
HPV45	L2	GIGTSGSGGR	58	11		38416
HPV45	L2	GIHGTQYY	430	8		38417
HPV45	L2	GSGGRGTG	64	8		38418
HPV45	L2	GSGSGGRGTG	62	10		38419
HPV45	L2	GTCPPDVINK	25	10		38420
HPV45	L2	GTGSGSGGR	60	9		38421
HPV45	L2	GTPTSGSH	183	8		38422
HPV45	L2	GTPTSGSHGY	183	10		38423
HPV45	L2	GTQYYLWPWY	433	10		38424
HPV45	L2	GTQYYLWPWYY	433	11		38425
HPV45	L2	GTVRFSLQQR	292	11		38426
HPV45	L2	HDISPIAA	321	8		38427
HPV45	L2	HFYHDISPIA	318	10		38428
HPV45	L2	HFYHDISPIAA	318	11		38429
HPV45	L2	HGTQYYLWPWY	432	11		38430
HPV45	L2	HGYEEIPLQTF	190	11		38431
HPV45	L2	IFVGTPTSGSH	180	11		38432
HPV45	L2	IGGRVHFY	313	8		38433
HPV45	L2	IGGRVHFYH	313	9		38434
HPV45	L2	IGHGTQY	429	8		38435
HPV45	L2	IGHGTQYY	429	9		38436
HPV45	L2	IGTSGSGGR	59	10		38437
HPV45	L2	IIRLHRPA	279	8		38438
HPV45	L2	ILQWSSLGIF	44	10		38439
HPV45	L2	ISATNDSDLF	338	10		38440
HPV45	L2	ISSTPLPTVR	210	10		38441
HPV45	L2	ISSTPLPTVRR	210	11		38442
HPV45	L2	ISSTSFTNPA	152	10		38443
HPV45	L2	ISSTSFTNPAF	152	11		38444
HPV45	L2	ITSSGTTTPA	130	10		38445
HPV45	L2	KILQWSSLGIF	43	11		38446
HPV45	L2	KSFTYPKY	366	8		38447
HPV45	L2	KVEGTTLA	34	8		38448
HPV45	L2	KVEGTTLADK	34	10		38449
HPV45	L2	LFDVYADF	346	8		38450
HPV45	L2	LQQRATMF	299	8		38451
HPV45	L2	LQQRATMIFTR	299	10		38452

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L2	LISATNDSDLF	337	11		38453
HPV45	L2	LSSRRGTVR	287	9		38454
HPV45	L2	LSSRRGTVR	287	10		38455
HPV45	L2	LTHPSSLVTF	242	10		38456
HPV45	L2	LTMPSTAA	375	8		38457
HPV45	L2	LTMPSTAASSY	375	11		38458
HPV45	L2	LTSAWDVPIY	392	10		38459
HPV45	L2	LVEDSSVVA	106	9		38460
HPV45	L2	LVTFDNPA	248	8		38461
HPV45	L2	LVTFDNPAY	248	9		38462
HPV45	L2	MDIIRLHR	277	8		38463
HPV45	L2	MDIIRLHRPA	277	10		38464
HPV45	L2	MVSHRAAR	1	8		38465
HPV45	L2	MVSHRAARR	1	9		38466
HPV45	L2	MVSHRAARRK	1	10		38467
HPV45	L2	MVSHRAARRKR	1	11		38468
HPV45	L2	NASTTTYIGIH	422	11		38469
HPV45	L2	NDSDLFDVY	342	9		38470
HPV45	L2	NDSDLFDVYA	342	10		38471
HPV45	L2	NTVVDVGPTR	79	10		38472
HPV45	L2	NVTVPLTSA	387	9		38473
HPV45	L2	PALSSRRGTVR	285	11		38474
HPV45	L2	PASTTPSTIH	356	10		38475
HPV45	L2	PASTTPSTIHK	356	11		38476
HPV45	L2	PDILPSH	404	8		38477
HPV45	L2	PDSEDFMDIIR	272	10		38478
HPV45	L2	PISSITPLPTVR	209	11		38479
HPV45	L2	PLDTTLSF	258	8		38480
HPV45	L2	PLPTVRRVR	214	9		38481
HPV45	L2	PLTSAWDVPIY	391	11		38482
HPV45	L2	PMWPTSTPNA	413	11		38483
HPV45	L2	PSSLVTFDNPA	245	11		38484
HPV45	L2	PSTAASSY	378	8		38485
HPV45	L2	PSTIHKSF	361	8		38486
HPV45	L2	PSTIHKSFY	361	10		38487
HPV45	L2	PSTSPTNA	416	8		38488
HPV45	L2	PTFTGTSGF	120	9		38489
HPV45	L2	PTNASTTY	420	9		38490
HPV45	L2	PTSGSHGY	185	8		38491
HPV45	L2	PTSNVPSDF	267	10		38492
HPV45	L2	PTVRRVRGPR	216	10		38493
HPV45	L2	PVPTFTGTSGF	118	11		38494
HPV45	L2	QIGGRVHF	312	8		38495
HPV45	L2	QIGGRVHFY	312	9		38496
HPV45	L2	QIGGRVHFIH	312	10		38497
HPV45	L2	QTGEVSGNIF	172	10		38498

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L2	QVRVSTSQF	233	9		38499
HPV45	L2	RAARRKRA	5	8		38500
HPV45	L2	RAARRKRASA	5	10		38501
HPV45	L2	RASATDLY	11	8		38502
HPV45	L2	RASATDLYR	11	9		38503
HPV45	L2	RATMFTRSQK	302	10		38504
HPV45	L2	RFSRLGQR	295	8		38505
HPV45	L2	RFSRLGQRA	295	9		38506
HPV45	L2	RGPRLYSR	222	8		38507
HPV45	L2	RGPRLYSRA	222	9		38508
HPV45	L2	RGTVRFSR	291	8		38509
HPV45	L2	RIPYFFADGF	451	10		38510
HPV45	L2	RLGQRATMF	298	9		38511
HPV45	L2	RLGQRATMFTF	298	11		38512
HPV45	L2	RLHRPALSSR	281	10		38513
HPV45	L2	RLHRPALSSRR	281	11		38514
HPV45	L2	RLYSRANQQVIR	225	11		38515
HPV45	L2	RSGKQIGGR	308	9		38516
HPV45	L2	RSGKQIGGRVHI	308	11		38517
HPV45	L2	RTGYVPLGGR	68	10		38518
HPV45	L2	RVRGPRLY	220	8		38519
HPV45	L2	RVRGPRLYSR	220	10		38520
HPV45	L2	RVRGPRLYSRA	220	11		38521
HPV45	L2	RVSTSQLFTH	235	10		38522
HPV45	L2	SATDLYRTCK	13	10		38523
HPV45	L2	SATNDSDLF	339	9		38524
HPV45	L2	SAWDVPIY	394	8		38525
HPV45	L2	SDFMDIIR	274	8		38526
HPV45	L2	SDFMDIIRLH	274	10		38527
HPV45	L2	SDFMDIIRLHR	274	11		38528
HPV45	L2	SDLFDVYA	344	8		38529
HPV45	L2	SDLFDVYADF	344	10		38530
HPV45	L2	SGAPVPTF	115	8		38531
HPV45	L2	SGKQIGGR	309	8		38532
HPV45	L2	SGKQIGGRVH	309	10		38533
HPV45	L2	SGKQIGGRVHF	309	11		38534
HPV45	L2	SGSGGRIGY	63	9		38535
HPV45	L2	SGTCPPDVINK	24	11		38536
HPV45	L2	SISSTFTNPA	151	11		38537
HPV45	L2	SLTMPSTA	374	8		38538
HPV45	L2	SLTMPSTAA	374	9		38539
HPV45	L2	SLVTFDNP	247	9		38540
HPV45	L2	SLVTFDNPAY	247	10		38541
HPV45	L2	SSGTTTPA	132	8		38542
HPV45	L2	SSLVTFDNPA	246	10		38543
HPV45	L2	SSLVTFDNPAY	246	11		38544

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L2	SSRRGTVR	288	8		38545
HPV45	L2	SSRRGTVR	288	9		38546
HPV45	L2	SSRRGTVRFSR	288	11		38547
HPV45	L2	SSTPLPTVR	211	9		38548
HPV45	L2	SSTPLPTVRR	211	10		38549
HPV45	L2	SSTSFTNPA	153	9		38550
HPV45	L2	SSTSFTNPAF	153	10		38551
HPV45	L2	SSVVASGA	110	8		38552
HPV45	L2	STHKSTY	362	9		38553
HPV45	L2	STHKSTYPK	362	11		38554
HPV45	L2	STPLPTVR	212	8		38555
HPV45	L2	STPLPTVRR	212	9		38556
HPV45	L2	STPLPTVRRVR	212	11		38557
HPV45	L2	STSFTNPA	154	8		38558
HPV45	L2	STSFTNPAF	154	9		38559
HPV45	L2	STSQFLTH	237	8		38560
HPV45	L2	STPSTIH	358	8		38561
HPV45	L2	STPSTIHK	358	9		38562
HPV45	L2	STPSTIHKSF	358	11		38563
HPV45	L2	STTYIGH	424	9		38564
HPV45	L2	SVSISSTF	149	9		38565
HPV45	L2	TCPPDVINK	26	9		38566
HPV45	L2	TDLYRTCK	15	8		38567
HPV45	L2	TFTGTSGF	121	8		38568
HPV45	L2	TGEVSGNIF	173	9		38569
HPV45	L2	TGPDILPSH	402	10		38570
HPV45	L2	TGSGSGGR	61	8		38571
HPV45	L2	TGSGSGGRIGY	61	11		38572
HPV45	L2	TGYVPLGGR	69	9		38573
HPV45	L2	THKSFTY	363	8		38574
HPV45	L2	THKSFTYPK	363	10		38575
HPV45	L2	THKSFTYPKY	363	11		38576
HPV45	L2	TLVEDSSVVA	105	10		38577
HPV45	L2	TMFTRSGK	304	8		38578
HPV45	L2	TMPSTAASSY	376	10		38579
HPV45	L2	TSAWDVPIY	393	9		38580
HPV45	L2	TSFTNPAF	155	8		38581
HPV45	L2	TSNVPSDF	268	9		38582
HPV45	L2	TSFTNASTTY	418	11		38583
HPV45	L2	TSSGTTTPA	131	9		38584
HPV45	L2	TTPSTIHK	359	8		38585
HPV45	L2	TTPSTIHKSF	359	10		38586
HPV45	L2	TTYIGH	425	8		38587
HPV45	L2	TTYIGHGTQY	426	11		38588
HPV45	L2	TVFRLGQR	293	10		38589
HPV45	L2	TVFRLGQRA	293	11		38590

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV45	L2	TVRRVRGPR	217	9		38591
HPV45	L2	TVRRVRGPRLY	217	11		38592
HPV45	L2	TVVDVGPTR	80	9		38593
HPV45	L2	VASGAPVPTF	113	10		38594
HPV45	L2	VDSVSISSTSF	147	11		38595
HPV45	L2	VGTPTSQSH	182	9		38596
HPV45	L2	VGTPTSQSHGY	182	11		38597
HPV45	L2	VINKVEGTTA	31	11		38598
HPV45	L2	VSHRAARR	2	8		38599
HPV45	L2	VSHRAARRK	2	9		38600
HPV45	L2	VSHRAARRKR	2	10		38601
HPV45	L2	VSHRAARRKRA	2	11		38602
HPV45	L2	VSISSTSF	150	8		38603
HPV45	L2	VSTSQFLTH	236	9		38604
HPV45	L2	VTFDNPAY	249	8		38605
HPV45	L2	VTLVEDSSVA	104	11		38606
HPV45	L2	VTVPLTSA	388	8		38607
HPV45	L2	VVASGAPVPTF	112	11		38608
HPV45	L2	VVDVGPTR	81	8		38609
HPV45	L2	YADFPPA	350	8		38610
HPV45	L2	YFFADGFVA	454	9		38611
HPV45	L2	YFFADGFVAA	454	10		38612
HPV45	L2	YFPKKRRK	444	8		38613
HPV45	L2	YFPKKRRKRIPIY	444	11		38614
HPV45	L2	YIGHGTQY	428	9		38615
HPV45	L2	YIGHGTQYY	428	10		38616
HPV45	L2	YLWPWYYY	437	8		38617
HPV45	L2	YLWPWYYYF	437	9		38618
HPV45	L2	YLWPWYYYFPPK	437	11		38619
HPV45	L2	YSLTMPSTA	373	9		38620
HPV45	L2	YSLTMPSTAA	373	10		38621
HPV45	L2	YSNVTVPLTSA	385	11		38622
HPV45	L2	YSRANQQVR	227	9		38623
HPV45	L2	YTGPDILPSII	401	11		38624
HPV56	E2	AAVSHRPGK	177	9		38625
HPV56	E2	AAVSHRPGKR	177	10		38626
HPV56	E2	ACSAIEVQIA	12	10		38627
HPV56	E2	ALESSTIY	21	10		38628
HPV56	E2	AVSHRPGK	178	8		38629
HPV56	E2	AVSHRPGKR	178	9		38630
HPV56	E2	AVSHRPGKRPR	178	11		38631
HPV56	E2	CCRYRFQK	249	8		38632
HPV56	E2	CCRYRFQKY	249	9		38633
HPV56	E2	CCRYRFQKYK	249	10		38634
HPV56	E2	CFKKEGQH	52	8		38635
HPV56	E2	CLQVCKAK	4	8		38636

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E2	CLQVCKAKA	4	9		38637
HPV56	E2	CMQYVAWK	71	8		38638
HPV56	E2	CMQYVAWKY	71	9		38639
HPV56	E2	CMQYVAWKYIY	71	11		38640
HPV56	E2	CSAIEVQIA	13	9		38641
HPV56	E2	CSGVDYRGIIY	92	10		38642
HPV56	E2	CSGVDYRGIIY	92	11		38643
HPV56	E2	DAAVSHRPGK	176	10		38644
HPV56	E2	DAAVSIIRPGKR	176	11		38645
HPV56	E2	DFEQEAKK	113	8		38646
HPV56	E2	DFEQEAKKF	113	9		38647
HPV56	E2	DGHKTYTDF	105	10		38648
HPV56	E2	DGSKNNCMQY	65	10		38649
HPV56	E2	DSSRESHA	195	8		38650
HPV56	E2	DSSRESHA	195	9		38651
HPV56	E2	DSSRESHA	140	8		38652
HPV56	E2	DSVSTCR	140	9		38653
HPV56	E2	DSVSTCR	140	8		38654
HPV56	E2	DTDNTDSR	213	8		38655
HPV56	E2	DTDNTDSRSR	213	10		38656
HPV56	E2	EAKKFGCK	117	8		38657
HPV56	E2	EFDSSRESH	193	9		38658
HPV56	E2	EFDSSRESHA	193	10		38659
HPV56	E2	EFDSSRESHA	193	11		38660
HPV56	E2	EGQHIEVWF	56	9		38661
HPV56	E2	ELWLTEPK	43	8		38662
HPV56	E2	ELWLTEPKK	43	9		38663
HPV56	E2	ELWLTEPKKCF	43	11		38664
HPV56	E2	ESEFSSR	191	8		38665
HPV56	E2	ESEFSSRESH	191	11		38666
HPV56	E2	ESHAKCVTH	199	10		38667
HPV56	E2	ESLSTIY	23	8		38668
HPV56	E2	ETQNSFLSH	288	10		38669
HPV56	E2	ETVNEYNTH	154	9		38670
HPV56	E2	ETVNEYNTHK	154	10		38671
HPV56	E2	EVHMENESIY	128	10		38672
HPV56	E2	EVWFDGSK	61	8		38673
HPV56	E2	FDGSKNNCMQY	64	11		38674
HPV56	E2	FDSRESHA	194	8		38675
HPV56	E2	FDSRESHA	194	9		38676
HPV56	E2	FGCKNIWEVH	194	10		38677
HPV56	E2	FLSHVKIPVY	121	10		38678
HPV56	E2	FLSHVKIPVY	294	11		38679
HPV56	E2	FVDVTSTY	261	8		38680
HPV56	E2	FVDVTSTYH	261	9		38681
HPV56	E2	GCKNIWEVH	122	9		38682
HPV56	E2	GDKTTPVH	231	9		38682

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E2	GDKTTPVVILK	231	11		38683
HPV56	E2	GIYYVIDGH	99	9		38684
HPV56	E2	GIYYVHDGHK	99	10		38685
HPV56	E2	GSKNNCMQY	66	9		38686
HPV56	E2	GSKNNCMQYVA	66	11		38687
HPV56	E2	GVDYRGY	94	8		38688
HPV56	E2	GVDYRGYY	94	9		38689
HPV56	E2	GVDYRGYYVH	94	11		38690
HPV56	E2	IAKCVTTH	201	8		38691
HPV56	E2	HAKCVTTHH	201	10		38692
HPV56	E2	HDGHKTTY	104	8		38693
HPV56	E2	HDGHKTTYTDF	104	11		38694
HPV56	E2	HIEVWFDGSK	59	10		38695
HPV56	E2	HSDDTNTDSR	210	11		38696
HPV56	E2	HLKGEPNR	239	8		38697
HPV56	E2	HLKGEPNRLK	239	10		38698
HPV56	E2	HMENESIY	130	8		38699
HPV56	E2	HVKIPVY	297	8		38700
HPV56	E2	HVKIPVVYR	297	9		38701
HPV56	E2	IALESLSSTHY	20	11		38702
HPV56	E2	IYKDETQR	283	9		38703
HPV56	E2	ISDDTNTDSR	211	10		38704
HPV56	E2	ITHYKDETQR	281	11		38705
HPV56	E2	KACSAIEVQIA	11	11		38706
HPV56	E2	KCCRYRFQK	248	9		38707
HPV56	E2	KCCRYRFQKY	248	10		38708
HPV56	E2	KCCRYRFQKYK	248	11		38709
HPV56	E2	KCFKKEGQH	51	9		38710
HPV56	E2	KCVTTHH	203	8		38711
HPV56	E2	KDETQRNSF	286	9		38712
HPV56	E2	KFGCKNIWEVH	120	11		38713
HPV56	E2	KGEPNRLK	241	8		38714
HPV56	E2	KGEPNRLKCCR	241	11		38715
HPV56	E2	KTLFVDVTSTY	258	11		38716
HPV56	E2	KTPVVILK	233	9		38717
HPV56	E2	KTYTDFEQEA	108	11		38718
HPV56	E2	KVCSGVY	90	8		38719
HPV56	E2	KVCSGVDYR	90	9		38720
HPV56	E2	LFVDVTSTY	260	9		38721
HPV56	E2	LFVDVTSTYH	260	10		38722
HPV56	E2	LSHVKIPVY	295	10		38723
HPV56	E2	LSHVKIPVVYR	295	11		38724
HPV56	E2	LTEPKKCF	46	8		38725
HPV56	E2	LTEPKKCFK	46	9		38726
HPV56	E2	LTEPKKCFKK	46	10		38727
HPV56	E2	MVPCLVQVCK	1	9		38728

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E2	MVPCLOVCKA	1	10		38729
HPV56	E2	MVPCLOVCKAK	1	11		38730
HPV56	E2	NCMQYVAWK	70	9		38731
HPV56	E2	NCMQYVAWKY	70	10		38732
HPV56	E2	NGDCGWQK	83	8		38733
HPV56	E2	NSFLSHVK	292	8		38734
HPV56	E2	NVSPVETVNEY	149	11		38735
HPV56	E2	PCLQVCKA	3	8		38736
HPV56	E2	PCLQVCKAK	3	9		38737
HPV56	E2	PCLQVCKAKA	3	10		38738
HPV56	E2	PDSVSSTCR	139	9		38739
HPV56	E2	PDSVSSTCRY	139	10		38740
HPV56	E2	PGDKTTPVVH	230	10		38741
HPV56	E2	PGKRPRLR	183	8		38742
HPV56	E2	PVETVNEY	152	8		38743
HPV56	E2	PVETVNEYNTH	152	11		38744
HPV56	E2	PVVHLKGPNR	236	11		38745
HPV56	E2	PVVYRLVWDK	301	10		38746
HPV56	E2	QDAAVSHR	175	8		38747
HPV56	E2	QDAAVSIIRPGK	175	11		38748
HPV56	E2	QVCKAKACSA	6	10		38749
HPV56	E2	RFQKYKTLF	253	9		38750
HPV56	E2	RGIYVVDHGH	98	10		38751
HPV56	E2	RGIYVVDHGHK	98	11		38752
HPV56	E2	RLKCCRYR	246	8		38753
HPV56	E2	RLKCCRYRF	246	9		38754
HPV56	E2	RLKCCRYRFQK	246	11		38755
HPV56	E2	RLRESEFDSR	188	11		38756
HPV56	E2	RSINNNNH	222	8		38757
HPV56	E2	RSRSINNNNH	220	10		38758
HPV56	E2	SAIEVQIA	14	8		38759
HPV56	E2	SDTDNTDSR	212	9		38760
HPV56	E2	SDTDNTDSRSR	212	11		38761
HPV56	E2	SGVDYRGY	93	9		38762
HPV56	E2	SGVDYRGYIY	93	10		38763
HPV56	E2	SITHYK	279	8		38764
HPV56	E2	SINNNHPGDK	223	11		38765
HPV56	E2	SSRESHAK	196	8		38766
HPV56	E2	STSVGNQDA	169	9		38767
HPV56	E2	STSVGNQDAA	169	10		38768
HPV56	E2	STYHW'TSDNK	266	11		38769
HPV56	E2	SVGNQDAA	171	8		38770
HPV56	E2	SVGNQDAAVSH	171	11		38771
HPV56	E2	SVSSTCRY	141	8		38772
HPV56	E2	TCEELWLTEPK	40	11		38773
HPV56	E2	TDFEQEAK	112	8		38774

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E2	TDFEQEAKK	112	9		38775
HPV56	E2	TDFEQEAKKF	112	10		38776
HPV56	E2	TDNTDSRSR	214	9		38777
HPV56	E2	TIYKDETQR	282	10		38778
HPV56	E2	TIYNNEWTLR	28	11		38779
HPV56	E2	TLFVDVTSTY	259	10		38780
HPV56	E2	TLFVDVTSTYH	259	11		38781
HPV56	E2	TSTDNKNY	271	8		38782
HPV56	E2	TSTSVGNQDA	168	10		38783
HPV56	E2	TSTSVGNQDA	168	11		38784
HPV56	E2	TSVGNQDA	170	8		38785
HPV56	E2	TSVGNQDA	170	9		38786
HPV56	E2	TTPVVHLK	234	8		38787
HPV56	E2	TTSTSVGNQDA	167	11		38788
HPV56	E2	TVNEYNTK	155	8		38789
HPV56	E2	TVNEYNTK	155	9		38790
HPV56	E2	VAWKYIY	75	8		38791
HPV56	E2	VCKAKACSA	7	9		38792
HPV56	E2	VCSGVDYR	91	8		38793
HPV56	E2	VCSGVDYRGIY	91	11		38794
HPV56	E2	VDVTSTYH	262	8		38795
HPV56	E2	VDYRGIY	95	8		38796
HPV56	E2	VDYRGIYYVH	95	10		38797
HPV56	E2	VGNQDAAVSH	172	10		38798
HPV56	E2	VGNQDAAVSHR	172	11		38799
HPV56	E2	VSHRPGKR	179	8		38800
HPV56	E2	VSHRPGKRPR	179	10		38801
HPV56	E2	VSPVETVNEY	150	10		38802
HPV56	E2	VVHLKGEPR	237	10		38803
HPV56	E2	VVYRLVWDK	302	9		38804
HPV56	E2	WLTEPKKCF	45	9		38805
HPV56	E2	WLTEPKKCFK	45	10		38806
HPV56	E2	WLTEPKKCFKK	45	11		38807
HPV56	E2	WTSTDNKNY	270	9		38808
HPV56	E2	YCPDSVSSICR	137	11		38809
HPV56	E2	YSIITIY	278	8		38810
HPV56	E2	YSIITIYK	278	9		38811
HPV56	E2	YTDFEQEA	111	8		38812
HPV56	E2	YTDFEQEAK	111	9		38813
HPV56	E2	YTDFEQEAKK	111	10		38814
HPV56	E2	YTDFEQEAKKF	111	11		38815
HPV56	E2	YVAWKYIY	74	8		38816
HPV56	E2	YVAWKYIY	74	9		38817
HPV56	E2	YVHDGHIKY	102	9		38818
HPV56	E2	YVIIDGHKITY	102	10		38819
HPV56	E6	ACTELKLVY	49	9		38820

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E6	ACTELKLVYR	49	10		38821
HPV56	E6	ATLESITK	89	8		38822
HPV56	E6	ATLESITKK	89	9		38823
HPV56	E6	AVCRVCLLF	64	9		38824
HPV56	E6	AVCRVCLLFY	64	10		38825
HPV56	E6	CDLLIRCY	100	8		38826
HPV56	E6	CDLLIRCYR	100	9		38827
HPV56	E6	CDRKKRRFH	122	8		38828
HPV56	E6	CDRKKRRFHIA	122	11		38829
HPV56	E6	CLGCVWRQTSR	139	10		38830
HPV56	E6	CLLFYSKVR	69	9		38831
HPV56	E6	CLLFYSKVRK	69	10		38832
HPV56	E6	CLLFYSKVRKY	69	11		38833
HPV56	E6	CTELKLVY	50	8		38834
HPV56	E6	CTELKLVYR	50	9		38835
HPV56	E6	CVYCKKELTR	33	10		38836
HPV56	E6	CVYCKKELTRA	33	11		38837
HPV56	E6	DDFPYAVCR	59	9		38838
HPV56	E6	DDFPYAVCR	60	8		38839
HPV56	E6	DLLIRCYR	101	8		38840
HPV56	E6	DLLRSCVY	28	8		38841
HPV56	E6	DLLRSCVYCK	28	10		38842
HPV56	E6	DLLRSCVYCKK	28	11		38843
HPV56	E6	EIPLIDLR	23	8		38844
HPV56	E6	ELKLVYRDDF	52	10		38845
HPV56	E6	ELTRAEVY	39	8		38846
HPV56	E6	ELTRAEVYNF	39	10		38847
HPV56	E6	ELTRAEVYNF	39	11		38848
HPV56	E6	ELTRAEVYNF	39	11		38849
HPV56	E6	EVLEIPLIDLR	20	11		38850
HPV56	E6	EVYNFACTELK	44	11		38851
HPV56	E6	FACTELKLVY	48	10		38852
HPV56	E6	FACTELKLVYR	48	11		38853
HPV56	E6	GATLESITK	88	9		38854
HPV56	E6	GATLESITKK	88	10		38855
HPV56	E6	GCWRQTSR	141	8		38856
HPV56	E6	GCWRQTSREPR	141	11		38857
HPV56	E6	GSCLGCWR	137	8		38858
HPV56	E6	HCDRKRKF	121	8		38859
HPV56	E6	HCDRKRKFH	121	9		38860
HPV56	E6	IDLRSCVY	27	11		38861
HPV56	E6	IDLRSCVYCK	27	11		38862
HPV56	E6	KLVYRDDF	54	8		38863
HPV56	E6	KLVYRDDFPY	54	10		38864
HPV56	E6	KLVYRDDFPYA	54	11		38865
HPV56	E6	KVRKYRY	75	8		38866
HPV56	E6	KVRKYRYDY	75	10		38866

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E6	LCDLLIRCY	99	9		38867
HPV56	E6	LCDLLIRCYR	99	10		38868
HPV56	E6	LFYSKVRK	71	8		38869
HPV56	E6	LFYSKVRKY	71	9		38870
HPV56	E6	LFYSKVRKYR	71	10		38871
HPV56	E6	LFYSKVRKYRY	71	11		38872
HPV56	E6	LGCWRQTSR	140	9		38873
HPV56	E6	LIDLRLSCVY	26	10		38874
HPV56	E6	LLFYSKVR	70	8		38875
HPV56	E6	LLFYSKVRK	70	9		38876
HPV56	E6	LLFYSKVRKY	70	10		38877
HPV56	E6	LLFYSKVRKYR	70	11		38878
HPV56	E6	LSCVYCKK	31	8		38879
HPV56	E6	LTPEEKQLH	113	9		38880
HPV56	E6	LTRAEVYNF	40	9		38881
HPV56	E6	LTRAEVYNFA	40	10		38882
HPV56	E6	LVYRDDFPY	55	9		38883
HPV56	E6	LVYRDDFPYA	55	10		38884
HPV56	E6	NFACTELK	47	8		38885
HPV56	E6	NFACTELKLVY	47	11		38886
HPV56	E6	PLIDRLSCVY	25	11		38887
HPV56	E6	PLTPEEKQLH	112	10		38888
HPV56	E6	QFNNPQER	4	8		38889
HPV56	E6	QFNNPQERPR	4	10		38890
HPV56	E6	QLCDLLIR	98	8		38891
HPV56	E6	QLCDLLIRCY	98	10		38892
HPV56	E6	QLCDLLIRCYR	98	11		38893
HPV56	E6	QLHCDRKR	119	8		38894
HPV56	E6	QLHCDRKRKR	119	9		38895
HPV56	E6	QLHCDRKRKF	119	10		38896
HPV56	E6	QLHCDRKRKFH	119	11		38897
HPV56	E6	QSPLTPEEK	110	9		38898
HPV56	E6	RAEVYNFA	42	8		38899
HPV56	E6	RQSPLTPEEK	108	11		38900
HPV56	E6	RDDFPYAVCR	58	10		38901
HPV56	E6	RLSCVYCK	30	8		38902
HPV56	E6	RLSCVYCKK	30	9		38903
HPV56	E6	RVCLLFYSK	67	9		38904
HPV56	E6	RVCLLFYSKVR	67	11		38905
HPV56	E6	SCLGWRQTSR	138	11		38906
HPV56	E6	SCVYCKKELTR	32	11		38907
HPV56	E6	TGSLGCVWR	136	9		38908
HPV56	E6	TLESITKK	90	8		38909
HPV56	E6	VCLLFYSK	68	8		38910
HPV56	E6	VCLLFYSKVR	68	10		38911
HPV56	E6	VCLLFYSKVRK	68	11		38912

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	E6	VCRVCLLF	65	8		38913
HPV56	E6	VCRVCLLFY	65	9		38914
HPV56	E6	VCRVCLLFYSK	65	11		38915
HPV56	E6	VLEPLIDL	21	10		38916
HPV56	E6	WTGSCLCWR	135	10		38917
HPV56	E6	YAVCRVCLLF	63	10		38918
HPV56	E6	YAVCRVCLLFY	63	11		38919
HPV56	E6	YCKKELTR	35	8		38920
HPV56	E6	YCKKELTRA	35	9		38921
HPV56	E6	YDYSVYGA	82	8		38922
HPV56	E6	YGATLESITK	87	10		38923
HPV56	E6	YGATLESITKK	87	11		38924
HPV56	E6	YSKVRKYR	73	8		38925
HPV56	E6	YSKVRKYRY	73	9		38926
HPV56	E6	YSKVRKYRYY	73	10		38927
HPV56	E7	ALVTCTPLCA	93	10		38928
HPV56	E7	DIQSTKEDLR	75	10		38929
HPV56	E7	EDEDEVEDH	33	10		38930
HPV56	E7	EDEDEVDH	35	8		38931
HPV56	E7	EDEVHLQER	37	10		38932
HPV56	E7	EVDHLQER	39	8		38933
HPV56	E7	FVVQLDIQSTK	70	11		38934
HPV56	E7	GALTVTCTPLCA	92	11		38935
HPV56	E7	HLQERPQQA	42	9		38936
HPV56	E7	HLQERPQAR	42	10		38937
HPV56	E7	HVPCCECK	62	8		38938
HPV56	E7	HVPCCECKF	62	9		38939
HPV56	E7	LDIOSTKEDLR	74	11		38940
HPV56	E7	LIHVPCECK	60	10		38941
HPV56	E7	LIHVPCECKF	60	11		38942
HPV56	E7	LTVTCTPLCA	94	9		38943
HPV56	E7	QAKQHTCY	52	8		38944
HPV56	E7	QAKQHTCYLIH	52	11		38945
HPV56	E7	QARQAKQH	49	8		38946
HPV56	E7	QARQAKQHTCY	49	11		38947
HPV56	E7	QLDIQSTK	73	8		38948
HPV56	E7	QSTKEDLR	77	8		38949
HPV56	E7	RVVQQLLMGA	84	10		38950
HPV56	E7	TVTCTPLCA	95	8		38951
HPV56	E7	VDHLQERPQQA	40	11		38952
HPV56	E7	VVQLDIQSTK	71	10		38953
HPV56	E7	VVQQLLMGA	85	9		38954
HPV56	E7	YLIHVPCECK	59	11		38955
HPV56	L1	ACVGLEVGR	135	9		38956
HPV56	L1	ADAYGDSMWF	273	10		38957
HPV56	L1	ADAYGDSMWFY	273	11		38958

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	AGKVGETIPA	298	10		38959
HPV56	L1	AGLSGHIPLF	149	9		38960
HPV56	L1	AGLSGHIPLFNR	149	11		38961
HPV56	L1	AGSSRLLA	72	8		38962
HPV56	L1	AGSSRLLA VGH	72	11		38963
HPV56	L1	AMDFKVLQESK	241	11		38964
HPV56	L1	AMGEIHWTK	198	8		38965
HPV56	L1	AMGEHWTKGA	198	10		38966
HPV56	L1	ATDSYVVKR	58	8		38967
HPV56	L1	ATEQLSKY	381	8		38968
HPV56	L1	ATEQLSKYDA	381	10		38969
HPV56	L1	ATEQLSKYDAR	381	11		38970
HPV56	L1	ATSKKRSA	514	8		38971
HPV56	L1	ATSLEDKY	444	8		38972
HPV56	L1	ATSLEDKYR	444	9		38973
HPV56	L1	ATSLEDKYRY	444	10		38974
HPV56	L1	ATWRPSENK	37	9		38975
HPV56	L1	ATWRPSENKVY	37	11		38976
HPV56	L1	AVATSKKR	512	8		38977
HPV56	L1	AVATSKKRSA	512	10		38978
HPV56	L1	AVGHPYYSVTK	79	11		38979
HPV56	L1	AVNVPIIF	26	8		38980
HPV56	L1	CIFLDVGA	19	8		38981
HPV56	L1	CIVGCTPA	191	8		38982
HPV56	L1	CTPAMGEH	195	8		38983
HPV56	L1	CTPAMGEHWTK	195	11		38984
HPV56	L1	CVGLEVGR	136	8		38985
HPV56	L1	DARKINQY	389	8		38986
HPV56	L1	DARKINQYLR	389	10		38987
HPV56	L1	DARKINQYLRH	389	11		38988
HPV56	L1	DAYGDSMWF	274	9		38989
HPV56	L1	DAYGDSMWFY	274	10		38990
HPV56	L1	DDTESSNLA	161	9		38991
HPV56	L1	DFKVLQESK	243	9		38992
HPV56	L1	DFKVLQESKA	243	10		38993
HPV56	L1	DGDMIDTGF	231	9		38994
HPV56	L1	DGDMIDTGFGA	231	11		38995
HPV56	L1	DIVQSTCK	257	8		38996
HPV56	L1	DIVQSTCKY	257	9		38997
HPV56	L1	DLDOFPLGR	491	9		38998
HPV56	L1	DLDOFPLGRK	491	10		38999
HPV56	L1	DLDOFPLGRKF	491	11		39000
HPV56	L1	DMIDTGFGA	233	9		39001
HPV56	L1	DSFSTDLDQF	486	10		39002
HPV56	L1	DSMWFYLR	278	8		39003
HPV56	L1	DSMWFYLRRL	278	9		39004

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	DSRDNISVDGK	176	11		39005
HPV56	L1	DSVVKRTSIF	60	10		39006
HPV56	L1	DSYVKRTSIF	60	11		39007
HPV56	L1	DTESSNLA	162	8		39008
HPV56	L1	DTGFGAMDf	236	9		39009
HPV56	L1	DTGFGAMDFK	236	10		39010
HPV56	L1	DTNIYNPDQER	121	11		39011
HPV56	L1	DVGAVNVF	23	8		39012
HPV56	L1	DVGAVNVFPIF	23	11		39013
HPV56	L1	DVNLQDSF	481	8		39014
HPV56	L1	EAQLENKPY	337	9		39015
HPV56	L1	EDGDMIDTGF	230	10		39016
HPV56	L1	EDKYRYVR	448	8		39017
HPV56	L1	EDKYRYVRSTA	448	11		39018
HPV56	L1	ELQFVFQLCK	404	10		39019
HPV56	L1	ELYLKGSNGR	308	10		39020
HPV56	L1	ETIPAELY	303	8		39021
HPV56	L1	ETIPAELYLK	303	10		39022
HPV56	L1	EVGRGQPLGA	140	10		39023
HPV56	L1	EV MAYLHNMNA	419	11		39024
HPV56	L1	FARIHYFNR	290	8		39025
HPV56	L1	FARIHYFNRA	290	9		39026
HPV56	L1	FARIHYFNRAKG	290	11		39027
HPV56	L1	FGLPDTNIY	117	9		39028
HPV56	L1	FLDVGAVNVF	21	10		39029
HPV56	L1	FLMQLGTR	501	8		39030
HPV56	L1	FLMQLGTRSK	501	10		39031
HPV56	L1	FLQMATWR	33	8		39032
HPV56	L1	FSTDLDQF	488	8		39033
HPV56	L1	FVTVVDTR	364	9		39034
HPV56	L1	GAGLSGIPLF	148	10		39035
HPV56	L1	GAVNVFPIF	25	9		39036
HPV56	L1	GCTPAMGEH	194	9		39037
HPV56	L1	GDMIDTGF	232	8		39038
HPV56	L1	GDMIDTGFGA	232	10		39039
HPV56	L1	GDSMWFYLR	277	9		39040
HPV56	L1	GDSMWFYLR	277	10		39041
HPV56	L1	GFGAMDFK	238	8		39042
HPV56	L1	GICWGNOLF	356	9		39043
HPV56	L1	GLCIFLDVGA	17	10		39044
HPV56	L1	GLPDTNIY	118	8		39045
HPV56	L1	GLSGIPLF	150	8		39046
HPV56	L1	GLSGIPLFNR	150	10		39047
HPV56	L1	GSMITSEA	331	8		39048
HPV56	L1	GSMITSEAQLF	331	11		39049
HPV56	L1	GSSRLLAUGH	73	10		39050

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	GTRSKPAVA	506	9		39051
HPV56	L1	HAGSSRLLA	71	9		39052
HPV56	L1	HVEEYELQF	399	9		39053
HPV56	L1	HVEEYELQFVF	399	11		39054
HPV56	L1	ICWGNQLF	357	8		39055
HPV56	L1	IDTGFAMDF	235	10		39056
HPV56	L1	IDTGFAMDFK	235	11		39057
HPV56	L1	IFLDVGAVNVF	20	11		39058
HPV56	L1	IFLQMATWR	32	9		39059
HPV56	L1	IFYHAGSSR	68	9		39060
HPV56	L1	IGLSPVA	437	8		39061
HPV56	L1	ISTATEQLSK	378	10		39062
HPV56	L1	ISTATEQLSKY	378	11		39063
HPV56	L1	ITLSAEVMA	414	9		39064
HPV56	L1	ITLSAEVMAY	414	10		39065
HPV56	L1	ITSEAOQLF	334	8		39066
HPV56	L1	ITSEAOQLFNK	334	10		39067
HPV56	L1	IVGCTPAMGEII	192	11		39068
HPV56	L1	IVQSTCKY	258	8		39069
HPV56	L1	IVQSTCKYPDY	258	11		39070
HPV56	L1	KDNTKTNIPK	89	10		39071
HPV56	L1	KFGLPDINIY	116	10		39072
HPV56	L1	KFLMQLGTR	500	9		39073
HPV56	L1	KFLMQLGTRSK	500	11		39074
HPV56	L1	KFWDVNLQDSF	478	11		39075
HPV56	L1	KINQYL RH	392	8		39076
HPV56	L1	KITLSAEVMA	413	10		39077
HPV56	L1	KITLSAEVMAY	413	11		39078
HPV56	L1	KTNIPK VSA	93	9		39079
HPV56	L1	KTNIPK VSA Y	93	10		39080
HPV56	L1	KVGETIPA	300	8		39081
HPV56	L1	KVGETIPAELY	300	11		39082
HPV56	L1	KVLOESKA	245	8		39083
HPV56	L1	KVSA YQYR	98	8		39084
HPV56	L1	KVSA YQYRVF	98	10		39085
HPV56	L1	KVSA YQYRVFR	98	11		39086
HPV56	L1	KVVATDSY	55	8		39087
HPV56	L1	KVVATDSYVK	55	10		39088
HPV56	L1	KVVATDSYVKR	55	11		39089
HPV56	L1	KVYLPPTPVSK	45	11		39090
HPV56	L1	LANNNVIEDSR	168	11		39091
HPV56	L1	LAVGHPYY	78	8		39092
HPV56	L1	LCIFLDVGA	18	9		39093
HPV56	L1	LCIVGCTPA	190	9		39094
HPV56	L1	LCKITLSA	411	8		39095
HPV56	L1	LDDTESSNLA	160	10		39096

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	LDIVQSTCK	256	9		39097
HPV56	L1	LDIVQSTCKY	256	10		39098
HPV56	L1	LDQFPLGR	492	8		39099
HPV56	L1	LDQFPLGRK	492	9		39100
HPV56	L1	LDQFPLGRKF	492	10		39101
HPV56	L1	LDVGAVNVF	22	9		39102
HPV56	L1	LFARHYFNR	289	9		39103
HPV56	L1	LFARHYFNRA	289	10		39104
HPV56	L1	LFNKPYWLQR	340	10		39105
HPV56	L1	LFNKPYWLQRA	340	11		39106
HPV56	L1	LFVTVDVDTTR	363	10		39107
HPV56	L1	LGAGLSGH	147	8		39108
HPV56	L1	LGAGLSGHPLF	147	11		39109
HPV56	L1	LGTRSKPA	505	8		39110
HPV56	L1	LGTRSKPAVA	505	10		39111
HPV56	L1	LLAVGHPY	77	8		39112
HPV56	L1	LLAVGHPYY	77	9		39113
HPV56	L1	LMQLGTRSK	502	9		39114
HPV56	L1	LMQLGTRSKPA	502	11		39115
HPV56	L1	LSAEVMAY	416	8		39116
HPV56	L1	LSAEVMAYLII	416	10		39117
HPV56	L1	LSGHPLFNR	151	9		39118
HPV56	L1	LSKYDARK	385	8		39119
HPV56	L1	MATWRPSENK	36	10		39120
HPV56	L1	MAYLHNHNA	421	9		39121
HPV56	L1	MDFKVLQESK	242	10		39122
HPV56	L1	MDFKVLQESKA	242	11		39123
HPV56	L1	MGEHWTGKA	199	9		39124
HPV56	L1	MIDTGFGA	234	8		39125
HPV56	L1	MIDTGFGAMDF	234	11		39126
HPV56	L1	MITSEAQLF	333	9		39127
HPV56	L1	MITSEAQLFNK	333	11		39128
HPV56	L1	MLPMMYIY	2	8		39129
HPV56	L1	MLPMMYIYR	2	9		39130
HPV56	L1	MMLPMMYIY	1	9		39131
HPV56	L1	MMLPMMYIYR	1	10		39132
HPV56	L1	MMYIYRDPPLH	5	11		39133
HPV56	L1	NGICWGNQLF	355	10		39134
HPV56	L1	NGREPPSSVY	315	11		39135
HPV56	L1	NIGLSPVA	436	9		39136
HPV56	L1	NIPKVSAY	95	8		39137
HPV56	L1	NIPKVSAYQY	95	10		39138
HPV56	L1	NIPKVSAYQYR	95	11		39139
HPV56	L1	NIYNPDQER	123	9		39140
HPV56	L1	NTKTNIPK	91	8		39141
HPV56	L1	NTKTNIPKVA	91	11		39142

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	NVPIFLQMA	28	10		39143
HPV56	L1	PAMGEIHWTK	197	9		39144
HPV56	L1	PAMGEIHWTKGA	197	11		39145
HPV56	L1	PAVATSKK	511	8		39146
HPV56	L1	PAVATSKKR	511	9		39147
HPV56	L1	PAVATSKKRS	511	11		39148
HPV56	L1	PDQERLVWA	127	9		39149
HPV56	L1	PDYLKMSA	266	8		39150
HPV56	L1	PDYLKMSADA	266	10		39151
HPV56	L1	PDYLKMSADAY	266	11		39152
HPV56	L1	PIELQMATWR	31	10		39153
HPV56	L1	PLDIVQSTCK	255	10		39154
HPV56	L1	PLDIVQSTCKY	255	11		39155
HPV56	L1	PLGAGLSGH	146	9		39156
HPV56	L1	PLHYGLCIF	13	9		39157
HPV56	L1	PSGSMITSEA	329	10		39158
HPV56	L1	PTEKQDPLA	467	9		39159
HPV56	L1	PTEKQDPLAK	467	10		39160
HPV56	L1	PTEKQDPLAKY	467	11		39161
HPV56	L1	PTPVSKVVA	50	9		39162
HPV56	L1	PTSTSTPA	522	8		39163
HPV56	L1	PTSTSTPAK	522	9		39164
HPV56	L1	PTSTSTPAKR	522	10		39165
HPV56	L1	PTSTSTPAKRK	522	11		39166
HPV56	L1	PVATSLDK	442	9		39167
HPV56	L1	PVATSLDKY	442	10		39168
HPV56	L1	PVATSLDKYR	442	11		39169
HPV56	L1	PVSKVVATDSY	52	11		39170
HPV56	L1	QDPLAKYK	471	8		39171
HPV56	L1	QDPLAKYKF	471	9		39172
HPV56	L1	QDSFSTDLQF	485	11		39173
HPV56	L1	QFPLGRKF	494	8		39174
HPV56	L1	QFVFLCK	406	8		39175
HPV56	L1	QLCIVGCTPA	189	10		39176
HPV56	L1	QLCKITLSA	410	9		39177
HPV56	L1	QLFARIYF	288	8		39178
HPV56	L1	QLFARIHYFNR	288	10		39179
HPV56	L1	QLFARIHYFNRA	288	11		39180
HPV56	L1	QLFNKPYWLQR	339	11		39181
HPV56	L1	QLFVTVDITR	362	11		39182
HPV56	L1	QLGTRSKPA	504	9		39183
HPV56	L1	QLGTRSKPAVA	504	11		39184
HPV56	L1	QLSKYDAR	384	8		39185
HPV56	L1	QLSKYDARK	384	9		39186
HPV56	L1	QMATWRPSENK	35	11		39187
HPV56	L1	QSTCKYDPY	260	9		39188

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	QSTCKYPDYLK	260	11		39189
HPV56	L1	QVTGDCPPLA	213	11		39190
HPV56	L1	RAGKVGETIPA	297	11		39191
HPV56	L1	RDNISVDGK	178	9		39192
HPV56	L1	RLDDTESSNLA	159	11		39193
HPV56	L1	RLLA VGHPIY	76	9		39194
HPV56	L1	RLLA VGHPIY	76	10		39195
HPV56	L1	RLDPDNKF	110	8		39196
HPV56	L1	RSAPTSTSTPA	519	11		39197
HPV56	L1	RSKPAVATSK	508	10		39198
HPV56	L1	RSKPAVATSKK	508	11		39199
HPV56	L1	RSTAITCQR	455	9		39200
HPV56	L1	RSTNMTISTA	372	10		39201
HPV56	L1	RTSIFYHA	65	8		39202
HPV56	L1	RVRLPDPNK	108	9		39203
HPV56	L1	RVRLPDPNKF	108	10		39204
HPV56	L1	SADAYGDSMWF	272	11		39205
HPV56	L1	SAEVMAYLH	417	9		39206
HPV56	L1	SAPTSTSTPA	520	10		39207
HPV56	L1	SAPTSTSTPAK	520	11		39208
HPV56	L1	SAYQYRVF	100	8		39209
HPV56	L1	SAYQYRVFR	100	9		39210
HPV56	L1	SAYQYRVFRVR	100	11		39211
HPV56	L1	SFSTDLDQF	487	9		39212
HPV56	L1	SGHPLFNR	152	8		39213
HPV56	L1	SGSMITSEA	330	9		39214
HPV56	L1	SIFYHAGSSR	67	10		39215
HPV56	L1	SLEDKYRY	446	8		39216
HPV56	L1	SLEDKYRYVR	446	10		39217
HPV56	L1	SMITSEAQLF	332	10		39218
HPV56	L1	SMWFLRR	279	8		39219
HPV56	L1	SSRLAVGH	74	9		39220
HPV56	L1	SSRLAVGHPIY	74	11		39221
HPV56	L1	STAITCQR	456	8		39222
HPV56	L1	STATEQLSK	379	9		39223
HPV56	L1	STATEQLSKY	379	10		39224
HPV56	L1	STCKYPDY	261	8		39225
HPV56	L1	STCKYPDYLK	261	10		39226
HPV56	L1	STDLDQFPLGR	489	11		39227
HPV56	L1	STNMTISTA	373	9		39228
HPV56	L1	STPAKRKR	526	8		39229
HPV56	L1	STPAKRKRKR	526	9		39230
HPV56	L1	STSTPAKR	524	8		39231
HPV56	L1	STSTPAKRK	524	9		39232
HPV56	L1	STSTPAKRKR	524	10		39233
HPV56	L1	STSTPAKRKRKR	524	11		39234

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	SVTKDNTK	86	8		39235
HPV56	L1	TATEQLSK	380	8		39236
HPV56	L1	TATEQLSKY	380	9		39237
HPV56	L1	TATEQLSKYDA	380	11		39238
HPV56	L1	TCKYPDYLK	262	9		39239
HPV56	L1	TCQREQPTTEK	460	11		39240
HPV56	L1	TDLDDQPLGR	490	10		39241
HPV56	L1	TDLDDQPLGRK	490	11		39242
HPV56	L1	TDSYVVRTSIF	59	11		39243
HPV56	L1	TGDCPPLA	216	8		39244
HPV56	L1	TGFGAMDF	237	8		39245
HPV56	L1	TGFGAMDFK	237	9		39246
HPV56	L1	TIPAELYLK	304	9		39247
HPV56	L1	TISTATEQLSK	377	11		39248
HPV56	L1	TLSAEVMA	415	8		39249
HPV56	L1	TLSAEVMAY	415	9		39250
HPV56	L1	TLSAEVMAYLH	415	11		39251
HPV56	L1	TSEAOQFNK	335	9		39252
HPV56	L1	TSEAOQFNKPY	335	11		39253
HPV56	L1	TSIFYHAGSSR	66	11		39254
HPV56	L1	TSLEDKRY	445	8		39255
HPV56	L1	TSLEDKRYR	445	9		39256
HPV56	L1	TSLEDKRYRVR	445	11		39257
HPV56	L1	TSTPAKRK	525	8		39258
HPV56	L1	TSTPAKRKR	525	9		39259
HPV56	L1	TSTPAKRKR	525	10		39260
HPV56	L1	TSTTPAK	523	8		39261
HPV56	L1	TSTTPAKR	523	9		39262
HPV56	L1	TSTTPAKRK	523	10		39263
HPV56	L1	TSTTPAKRKR	523	11		39264
HPV56	L1	TTGDCPPLA	215	9		39265
HPV56	L1	VATDSYVK	57	8		39266
HPV56	L1	VATDSYVKR	57	9		39267
HPV56	L1	VATSKKRS	513	9		39268
HPV56	L1	VATSLDK	443	8		39269
HPV56	L1	VATSLDKY	443	9		39270
HPV56	L1	VATSLDKYR	443	10		39271
HPV56	L1	VATSLDKYRY	443	11		39272
HPV56	L1	VFPIFLQMA	29	9		39273
HPV56	L1	VFQLCKITLSA	408	11		39274
HPV56	L1	VFRVRLPDNPK	106	11		39275
HPV56	L1	VGAENVFPIF	24	10		39276
HPV56	L1	VGCTPAMGEH	193	10		39277
HPV56	L1	VGETIPAELY	301	10		39278
HPV56	L1	VGHPIYSYVTK	80	10		39279
HPV56	L1	VGRGQPLGA	141	9		39280

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L1	VMAYLHNMNA	420	10		39281
HPV56	L1	VSAYQYRVF	99	9		39282
HPV56	L1	VSAYQYRVF	99	10		39283
HPV56	L1	VSKVVATDSY	53	10		39284
HPV56	L1	VITGDCPLA	214	10		39285
HPV56	L1	VTVDVTR	365	8		39286
HPV56	L1	VVATDSYVK	56	9		39287
HPV56	L1	VVATDSYVKR	56	10		39288
HPV56	L1	WACVGLVGR	134	10		39289
HPV56	L1	WDVNLQDSF	480	9		39290
HPV56	L1	WFYLRREQLF	281	10		39291
HPV56	L1	WFYLRREQLFA	281	11		39292
HPV56	L1	WLQRAQGH	346	8		39293
HPV56	L1	WTKGAVCK	203	8		39294
HPV56	L1	YDARKINQY	388	9		39295
HPV56	L1	YDARKINQYLR	388	11		39296
HPV56	L1	YGDSMWFY	276	8		39297
HPV56	L1	YGDSMWFYLR	276	10		39298
HPV56	L1	YGDSMWFYLR	276	11		39299
HPV56	L1	YGLCIFLDVGA	16	11		39300
HPV56	L1	YIYRDPPLH	7	9		39301
HPV56	L1	YIYRDPPLHY	7	10		39302
HPV56	L1	YILKGSNGR	310	8		39303
HPV56	L1	YILKMSADA	268	8		39304
HPV56	L1	YILKMSADAY	268	9		39305
HPV56	L1	YLPPTPVSK	47	9		39306
HPV56	L1	YLRHVEEY	396	8		39307
HPV56	L1	YLRREQLF	283	8		39308
HPV56	L1	YLRREQLFA	283	9		39309
HPV56	L1	YLRREQLFAR	283	10		39310
HPV56	L1	YLRREQLFARH	283	11		39311
HPV56	L1	YSVTKDNTK	85	9		39312
HPV56	L1	YVKRTSIF	62	8		39313
HPV56	L1	YVKRTSIFY	62	9		39314
HPV56	L1	YVKRTSIFYH	62	10		39315
HPV56	L1	YVKRTSIFYHA	62	11		39316
HPV56	L1	YVRSTAITCQR	453	11		39317
HPV56	L2	AAAPRLYRK	222	8		39318
HPV56	L2	AAAPRLYRKA	222	9		39319
HPV56	L2	AAAPRLYRKAF	222	10		39320
HPV56	L2	ADKILQWGSF	41	11		39321
HPV56	L2	AFQQVKVTDPA	230	11		39322
HPV56	L2	AFSPSGVA	264	8		39323
HPV56	L2	AFTTRRGVGR	286	10		39324
HPV56	L2	AFTTRRGVGRF	286	11		39325
HPV56	L2	AGYVPLGSR	69	9		39326

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	ALHHPAFTR	281	10		39327
HPV56	L2	ALHHPAFTRR	281	11		39328
HPV56	L2	ALWPVYFF	438	8		39329
HPV56	L2	ALWPVYFFR	438	9		39330
HPV56	L2	ALWPVYFFRR	438	10		39331
HPV56	L2	ALWPVYFFRRR	438	11		39332
HPV56	L2	ASATQLYK	12	8		39333
HPV56	L2	ASATQLYKTCK	12	11		39334
HPV56	L2	ASNTTNVTA	383	9		39335
HPV56	L2	ATLVSADNPLF	246	11		39336
HPV56	L2	ATPSAHLPIK	367	10		39337
HPV56	L2	ATQLYKTCK	14	9		39338
HPV56	L2	ATRRKRASA	6	9		39339
HPV56	L2	DFMNIVALH	275	9		39340
HPV56	L2	DFMNIVALHR	275	10		39341
HPV56	L2	DGLYDIYA	345	8		39342
HPV56	L2	DISPIAQA	322	8		39343
HPV56	L2	DITPTSSTVH	142	10		39344
HPV56	L2	DIYANIDDEA	349	10		39345
HPV56	L2	DVYVKNIEQK	30	9		39346
HPV56	L2	DVYIQGSF	429	9		39347
HPV56	L2	DVYIQGSFA	429	10		39348
HPV56	L2	EAPGLSSQSV	357	11		39349
HPV56	L2	EDVVKIEQK	29	10		39350
HPV56	L2	EGTDTSLA	257	8		39351
HPV56	L2	EGTDTSLAF	257	9		39352
HPV56	L2	EIEMQPLLSA	331	10		39353
HPV56	L2	EIPMQTFA	194	8		39354
HPV56	L2	EIPMQTFVH	194	10		39355
HPV56	L2	EITSSSTTTA	129	11		39356
HPV56	L2	EMQPLLSA	333	8		39357
HPV56	L2	ESGAGIPNF	114	9		39358
HPV56	L2	ESSVIESGA	109	9		39359
HPV56	L2	FADGDVAA	457	8		39360
HPV56	L2	FALWPVYF	437	8		39361
HPV56	L2	FALWPVYFF	437	9		39362
HPV56	L2	FALWPVYFFR	437	10		39363
HPV56	L2	FALWPVYFFRR	437	11		39364
HPV56	L2	FASNTTNVTA	382	10		39365
HPV56	L2	FDGLYDIY	344	8		39366
HPV56	L2	FDGLYDIYA	344	9		39367
HPV56	L2	FFADGDVA	456	8		39368
HPV56	L2	FFADGDVAA	456	9		39369
HPV56	L2	FFRRRRRK	444	8		39370
HPV56	L2	FFRRRRRK	444	9		39371
HPV56	L2	FIDPPVIEA	162	9		39372

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	FLDRPATLVSA	241	11		39373
HPV56	L2	FMNIVALH	276	8		39374
HPV56	L2	FMNIVALHR	276	9		39375
HPV56	L2	FMNIVALHRPA	276	11		39376
HPV56	L2	FSRLGRKA	296	8		39377
HPV56	L2	FTTRRGVGR	287	9		39378
HPV56	L2	FTTRRGVRF	287	10		39379
HPV56	L2	FVQSPYDVTH	418	11		39380
HPV56	L2	GARVIYY	314	8		39381
HPV56	L2	GFRIAAPR	217	9		39382
HPV56	L2	GFRIAAPRLY	217	11		39383
HPV56	L2	GGVRFSLGR	292	10		39384
HPV56	L2	GGVRFSLGRK	292	11		39385
HPV56	L2	GIGTGTSGGR	58	11		39386
HPV56	L2	GIPNFTSGGF	118	11		39387
HPV56	L2	GLSSQSV A	360	8		39388
HPV56	L2	GSGGRAGY	64	8		39389
HPV56	L2	GSSFALWPVY	434	10		39390
HPV56	L2	GSSFALWPVYF	434	11		39391
HPV56	L2	GTCPEDVVK	25	10		39392
HPV56	L2	GTDTSLAF	258	8		39393
HPV56	L2	GTSGGGA	62	8		39394
HPV56	L2	GTSGGGRAGY	62	10		39395
HPV56	L2	GTGTSGGR	60	9		39396
HPV56	L2	GTGTSGGGA	60	10		39397
HPV56	L2	GTQIGARVH	310	9		39398
HPV56	L2	GTQIGARVIH	310	10		39399
HPV56	L2	GTQIGARVIHY	310	11		39400
HPV56	L2	GVAPDPDF	269	8		39401
HPV56	L2	GVRFSLGR	293	9		39402
HPV56	L2	GVRFSLGRK	293	10		39403
HPV56	L2	GVRFSLGRKA	293	11		39404
HPV56	L2	HDVYIQSSSF	428	10		39405
HPV56	L2	HDVYIQSSFA	428	11		39406
HPV56	L2	HLPKPTLSF	372	11		39407
HPV56	L2	HSYEEIPMQTF	190	11		39408
HPV56	L2	IAAPRLYR	221	8		39409
HPV56	L2	IAAPRLYRK	221	9		39410
HPV56	L2	IAAPRLYRKA	221	10		39411
HPV56	L2	IAAPRLYRKAF	221	11		39412
HPV56	L2	IDPPVIEA	163	8		39413
HPV56	L2	IGARVHY	313	8		39414
HPV56	L2	IGARVHY	313	9		39415
HPV56	L2	IGTGTSGGR	59	10		39416
HPV56	L2	IGTGTSGGRA	59	11		39417
HPV56	L2	ILISTPTSGIH	180	11		39418

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	ILQWGSFL	44	8		39419
HPV56	L2	ILQWGSFLTY	44	10		39420
HPV56	L2	ILQWGSFLTYF	44	11		39421
HPV56	L2	ISSTPIPGF	210	9		39422
HPV56	L2	ISSTPIPGFR	210	10		39423
HPV56	L2	ISSTPIPGFRR	210	11		39424
HPV56	L2	ISTPTSGIH	182	9		39425
HPV56	L2	ISTPTSGIHSY	182	11		39426
HPV56	L2	ITPTSSTVH	143	9		39427
HPV56	L2	ITSSSTTTPA	130	10		39428
HPV56	L2	IVALHRPA	279	8		39429
HPV56	L2	IVALHRPAF	279	9		39430
HPV56	L2	IVDVTGAR	81	8		39431
HPV56	L2	KATIQTRR	302	8		39432
HPV56	L2	KIEQKTTWA	34	8		39433
HPV56	L2	KIEQKTWADK	34	10		39434
HPV56	L2	KILQWGSFL	43	9		39435
HPV56	L2	KILQWGSFLTY	43	11		39436
HPV56	L2	KVTDPAFLDR	235	10		39437
HPV56	L2	LAFSPGVA	263	9		39438
HPV56	L2	LDITPTSSTVH	141	11		39439
HPV56	L2	LDRPATLVA	242	10		39440
HPV56	L2	LFEGTDTSLA	255	10		39441
HPV56	L2	LFEGTDTSLAF	255	11		39442
HPV56	L2	LFIDPPVIEA	161	10		39443
HPV56	L2	LGNNVWETPF	393	9		39444
HPV56	L2	LGNNVWETPFY	393	10		39445
HPV56	L2	LGRKATIQTR	299	10		39446
HPV56	L2	LGRKATIQTRR	299	11		39447
HPV56	L2	LISPTSGIH	181	10		39448
HPV56	L2	LLSANNF	337	8		39449
HPV56	L2	LSANNFDFGLY	338	11		39450
HPV56	L2	LSSQSVATPSA	361	11		39451
HPV56	L2	LVSADNPLF	248	9		39452
HPV56	L2	MVAHRATR	1	8		39453
HPV56	L2	MVAHRATRR	1	9		39454
HPV56	L2	MVAHRATRRK	1	10		39455
HPV56	L2	MVAHRATRRKR	1	11		39456
HPV56	L2	NFTSGGF	121	8		39457
HPV56	L2	NIVALHRPA	278	9		39458
HPV56	L2	NIVALHRPAF	278	10		39459
HPV56	L2	NSFDGLYDIY	342	10		39460
HPV56	L2	NSFDGLYDIYA	342	11		39461
HPV56	L2	NVWETPFY	395	8		39462
HPV56	L2	PAFLDRPA	239	8		39463
HPV56	L2	PAFTTRGGVR	285	11		39464

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	PDFMNIVA	274	8		39465
HPV56	L2	PDFMNIVALH	274	10		39466
HPV56	L2	PDFMNIVALHR	274	11		39467
HPV56	L2	PDFDFMNIVA	272	10		39468
HPV56	L2	PFVQSPY	417	8		39469
HPV56	L2	PGFRRIAA	216	8		39470
HPV56	L2	PGFRRIAAPR	216	10		39471
HPV56	L2	PGLSSQSV A	359	9		39472
HPV56	L2	PIKPTLSF	374	9		39473
HPV56	L2	PIKPTLSFA	374	10		39474
HPV56	L2	PIPGFRIA	214	9		39475
HPV56	L2	PIPGFRIA A	214	10		39476
HPV56	L2	PISSTPIPGF	209	10		39477
HPV56	L2	PISSTPIPGFR	209	11		39478
HPV56	L2	PLFEGTDTSLA	254	11		39479
HPV56	L2	PLFIDPPVIEA	160	11		39480
HPV56	L2	PLGNVWETPF	392	10		39481
HPV56	L2	PLGNVWETPFY	392	11		39482
HPV56	L2	PLLSANNSF	336	9		39483
HPV56	L2	PMQTF AVH	196	8		39484
HPV56	L2	PSAHLPIK	369	8		39485
HPV56	L2	PSGVAPDPDF	267	10		39486
HPV56	L2	PSTIVDVTPA	78	10		39487
HPV56	L2	PSTIVDVTPAR	78	11		39488
HPV56	L2	PTGPSTWPF	410	9		39489
HPV56	L2	PTSGIHSY	185	8		39490
HPV56	L2	PVYFFRRR	441	8		39491
HPV56	L2	PVYFFRRRR	441	9		39492
HPV56	L2	PVYFFRRRRR	441	10		39493
HPV56	L2	PVYFFRRRRRK	441	11		39494
HPV56	L2	QGSFALWPVY	433	11		39495
HPV56	L2	QIGARVHY	312	8		39496
HPV56	L2	QIGARVHY Y	312	9		39497
HPV56	L2	QIGARVHY Y Y	312	10		39498
HPV56	L2	QSPYDVTH	421	8		39499
HPV56	L2	QSPYDVTHDVY	421	11		39500
HPV56	L2	QSVATPSA	364	8		39501
HPV56	L2	QSVATPSAH	364	9		39502
HPV56	L2	QTRRG TQIGA	306	10		39503
HPV56	L2	QTRRG TQIGAR	306	11		39504
HPV56	L2	QVKVTDPA	233	8		39505
HPV56	L2	QVKVTDPAF	233	9		39506
HPV56	L2	RAGYVPLGSR	68	10		39507
HPV56	L2	RASATQLY	11	8		39508
HPV56	L2	RASATQLYK	11	9		39509
HPV56	L2	RATRRKRA	5	8		39510

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	RATRRKRASA	5	10		39511
HPV56	L2	RFSRLGRK	295	8		39512
HPV56	L2	RFSRLGRKA	295	9		39513
HPV56	L2	RGGRVRSR	291	8		39514
HPV56	L2	RGGRVRSRLGR	291	11		39515
HPV56	L2	RGTIQIGAR	309	8		39516
HPV56	L2	RGTIQIGARVH	309	10		39517
HPV56	L2	RGTIQIGARVHY	309	11		39518
HPV56	L2	RIAAPRLY	220	8		39519
HPV56	L2	RIAAPRLYR	220	9		39520
HPV56	L2	RIAAPRLYRK	220	10		39521
HPV56	L2	RIAAPRLYRKA	220	11		39522
HPV56	L2	RLGRKATIQTR	298	11		39523
HPV56	L2	RLYRKAFQQVK	225	11		39524
HPV56	L2	SANNSFDGLY	339	10		39525
HPV56	L2	SATQLYKTCK	13	10		39526
HPV56	L2	SFALWPVY	436	8		39527
HPV56	L2	SFALWPVYF	436	9		39528
HPV56	L2	SFALWPVYFF	436	10		39529
HPV56	L2	SFALWPVYFRR	436	11		39530
HPV56	L2	SFASNTTNVTA	381	11		39531
HPV56	L2	SFDGLYDIY	343	9		39532
HPV56	L2	SFDGLYDIYA	343	10		39533
HPV56	L2	SGAGIPNF	115	8		39534
HPV56	L2	SGTCPEDVVNK	24	11		39535
HPV56	L2	SGVAPDPDF	268	9		39536
HPV56	L2	SLAFSPGVA	262	10		39537
HPV56	L2	SSFALWPVY	435	9		39538
HPV56	L2	SSFALWPVYF	435	10		39539
HPV56	L2	SSFALWPVYFF	435	11		39540
HPV56	L2	SSQSVATPSA	362	10		39541
HPV56	L2	SSQSVATPSAH	362	11		39542
HPV56	L2	SSSTTTTPA	132	8		39543
HPV56	L2	SSTHTNPLF	153	10		39544
HPV56	L2	SSTPIPGF	211	8		39545
HPV56	L2	SSTPIPGFR	211	9		39546
HPV56	L2	SSTPIPGFRR	211	10		39547
HPV56	L2	SSTVHVSSTH	147	10		39548
HPV56	L2	SSVIESGA	110	8		39549
HPV56	L2	STHTNPLF	154	9		39550
HPV56	L2	STIVDVTTPA	79	9		39551
HPV56	L2	STIVDVTTPAR	79	10		39552
HPV56	L2	STPIPGFR	212	8		39553
HPV56	L2	STPIPGFRR	212	9		39554
HPV56	L2	STPIPGFRRIA	212	11		39555
HPV56	L2	STPTSGIH	183	8		39556

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	STPTSGIHSY	183	10		39557
HPV56	L2	STVIHVSSTH	148	9		39558
HPV56	L2	STWPFVQSPY	414	11		39559
HPV56	L2	SVATPSAH	365	8		39560
HPV56	L2	TCPEDVVNK	26	9		39561
HPV56	L2	TDPAFLDR	237	8		39562
HPV56	L2	TDPAFLDRPA	237	10		39563
HPV56	L2	TGPSTWPF	411	8		39564
HPV56	L2	TGSGGRAGY	63	9		39565
HPV56	L2	TGTGSGGR	61	8		39566
HPV56	L2	TGTGSGGRA	61	9		39567
HPV56	L2	TGTGSGGRAGY	61	11		39568
HPV56	L2	TIVDVTPA	80	8		39569
HPV56	L2	TIVDVTPAR	80	9		39570
HPV56	L2	TLVSADNPLF	247	10		39571
HPV56	L2	TSLAFSPSGVA	261	11		39572
HPV56	L2	TSSSTITPA	131	9		39573
HPV56	L2	TSSTVIHVSSTH	146	11		39574
HPV56	L2	TTRRGGR	288	8		39575
HPV56	L2	TTRRGGRVF	288	9		39576
HPV56	L2	TTRRGGRVRESR	288	11		39577
HPV56	L2	TVHVSSTH	149	8		39578
HPV56	L2	VAHRATRR	2	8		39579
HPV56	L2	VAHRATRRK	2	9		39580
HPV56	L2	VAHRATRRKR	2	10		39581
HPV56	L2	VAHRATRRKRA	2	11		39582
HPV56	L2	VALHRPAF	280	8		39583
HPV56	L2	VALHRPAFTTR	280	11		39584
HPV56	L2	VATPSAHLPIK	366	11		39585
HPV56	L2	VIESGAGIPNF	112	11		39586
HPV56	L2	VLPTGPSTWPF	408	11		39587
HPV56	L2	VSADNPLF	249	8		39588
HPV56	L2	VSSTHITNPLF	152	11		39589
HPV56	L2	VTDP AFLDR	236	9		39590
HPV56	L2	VTDP AFLDRPA	236	11		39591
HPV56	L2	VVNKIEQK	31	8		39592
HPV56	L2	VVNKIEQKTWA	31	11		39593
HPV56	L2	WGSIFTYF	47	8		39594
HPV56	L2	YANIDDEA	351	8		39595
HPV56	L2	YDISPIAQ	321	9		39596
HPV56	L2	YDIYANIDDEA	348	11		39597
HPV56	L2	YDVTHIDVY	424	8		39598
HPV56	L2	YFFADGDVA	455	9		39599
HPV56	L2	YFFADGDVAA	455	10		39600
HPV56	L2	YFFRRRRR	443	8		39601
HPV56	L2	YFFRRRRRK	443	9		39602

Table XVI
A03 Motif Peptides with Binding Data

Type	Protein	Sequence	Position	No. of Amino Acids	A*0301	Seq. Id. No.
HPV56	L2	YFFRRRRKR	443	10		39603
HPV56	L2	YIQSSFA	431	8		39604

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	316	8	AAALYWYK		39605
HPV16	E1	205	8	AAMLAKFK		39606
HPV16	E1	205	11	AAMLAKFKELY		39607
HPV16	E1	248	11	ADSIKTLQYY		39608
HPV16	E1	391	10	AFLKNSQAK		39609
HPV16	E1	570	9	AGTDSRWPY		39610
HPV16	E1	570	11	AGTDSRWPYLH		39611
HPV16	E1	112	9	AICIEKQSR	0.0057	39612
HPV16	E1	69	9	ALFTAQEAQ	0.4000	39613
HPV16	E1	69	11	ALFTAQEAQKH		39614
HPV16	E1	459	11	ALKRFLQGIPIK		39615
HPV16	E1	206	10	AMLAKEKELY		39616
HPV16	E1	406	8	ATMCRHYK		39617
HPV16	E1	406	9	ATMCRHYKR		39618
HPV16	E1	524	8	ATVPCWNY	1.5000	39619
HPV16	E1	82	8	AVQVLKRK		39620
HPV16	E1	82	9	AVQVLKRKY		39621
HPV16	E1	405	8	CATMCRHY		39622
HPV16	E1	405	9	CATMCRHYK	0.0098	39623
HPV16	E1	405	10	CATMCRHYKR		39624
HPV16	E1	430	11	CDRVDDGGDWK		39625
HPV16	E1	500	8	CFVNSKSH		39626
HPV16	E1	283	10	CGKNRETIK		39627
HPV16	E1	114	10	CIEQSRRAAK		39628
HPV16	E1	114	11	CIEQSRRAAKR		39629
HPV16	E1	304	8	CMMIEPPK		39630
HPV16	E1	304	10	CMMIEPPKLR		39631
HPV16	E1	101	9	CVDNNISPR		39632
HPV16	E1	101	11	CVDNNISPRLK		39633
HPV16	E1	523	9	DATVPCWNY		39634
HPV16	E1	81	8	DAVQVLKR		39635
HPV16	E1	81	9	DAVQVLKRK		39636
HPV16	E1	81	10	DAVQVLKRKY		39637
HPV16	E1	404	8	DCATMCRH		39638
HPV16	E1	404	9	DCATMCRHY	0.0001	39639
HPV16	E1	404	10	DCATMCRHYK	0.0130	39640
HPV16	E1	404	11	DCATMCRHYKR		39641
HPV16	E1	522	10	DDATVPCWNY		39642
HPV16	E1	371	8	DDSEIAYK		39643
HPV16	E1	371	9	DDSEIAYKY		39644
HPV16	E1	50	9	DFIVNDNDY		39645
HPV16	E1	631	9	DGDSLPTFK		39646
HPV16	E1	541	10	DGNLVSMGVK		39647
HPV16	E1	541	11	DGNLVSMGVKH		39648
HPV16	E1	368	10	DIVDDSEIAY		39649
HPV16	E1	368	11	DIVDDSEIAYK		39650

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	103	9	DNNISPRLK		39651
HPV16	E1	372	8	DSEIAYKY		39652
HPV16	E1	249	10	DSIKTLQQY		39653
HPV16	E1	573	8	DSRWPLYLH		39654
HPV16	E1	573	10	DSRWPLYLINR		39655
HPV16	E1	384	11	DTNSNASAFK		39656
HPV16	E1	335	8	DTPEWIQR		39657
HPV16	E1	548	11	DVKHRPLVOLK		39658
HPV16	E1	452	10	EFMSFLTALK		39659
HPV16	E1	452	11	EFMSFLTALKR		39660
HPV16	E1	11	10	EGTGCNGWFY	0.0002	39661
HPV16	E1	603	8	ELNDKNWK		39662
HPV16	E1	356	10	ELSQMVQWAY		39663
HPV16	E1	221	10	ELVRPFKSNK		39664
HPV16	E1	629	11	ENDGDSLPTFK		39665
HPV16	E1	152	9	ETETPCSQY		39666
HPV16	E1	288	9	ETIEKLLSK		39667
HPV16	E1	140	11	ETQQLQVEGR		39668
HPV16	E1	594	9	FDENGPNVY		39669
HPV16	E1	612	8	FFSRTWSR		39670
HPV16	E1	51	8	FIVNDNDY		39671
HPV16	E1	392	9	FLKNSQAK	0.0002	39672
HPV16	E1	463	8	FLQGPKK		39673
HPV16	E1	453	9	FMSFLTALK	0.2100	39674
HPV16	E1	453	10	FMSFLTALKR		39675
HPV16	E1	219	9	FSELVRPFK		39676
HPV16	E1	613	11	FSRTWSRLSLH		39677
HPV16	E1	71	9	FTAQEAKQH		39678
HPV16	E1	71	10	FTAQEAKQHR		39679
HPV16	E1	100	10	GCVDNNISPR		39680
HPV16	E1	632	8	GDSLPTFK		39681
HPV16	E1	334	9	GDTPEWIQR	0.0002	39682
HPV16	E1	437	11	GDWKQIVMFLR		39683
HPV16	E1	176	8	GGEGVSR		39684
HPV16	E1	176	9	GGEGVSRH		39685
HPV16	E1	162	10	GGSGGCSQY		39686
HPV16	E1	466	11	GIPKNCILLY		39687
HPV16	E1	325	9	GISNISEVY		39688
HPV16	E1	242	11	GLTPSIADSIK		39689
HPV16	E1	272	9	GMVLLLVYR	0.0082	39690
HPV16	E1	272	10	GMVLLLVRY		39691
HPV16	E1	272	11	GMVLLLVRYK		39692
HPV16	E1	542	9	GMLVSMDEVK		39693
HPV16	E1	542	10	GMLVSMDEVKII		39694
HPV16	E1	542	11	GMLVSMDEVKHIR		39695
HPV16	E1	598	10	GNPVYELNDK		39696

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	174	10	GSGGEGVSR		39697
HPV16	E1	174	11	GSGGEGVSRH		39698
HPV16	E1	163	9	GSGGCSQY		39699
HPV16	E1	496	10	GSVCFVNSK		39700
HPV16	E1	571	8	GTDSRWPY		39701
HPV16	E1	571	10	GTDSRWPYLH		39702
HPV16	E1	12	9	GTGCNGWFY	0.0720	39703
HPV16	E1	216	9	GVSFSELVR	0.0180	39704
HPV16	E1	68	10	HALFTAQEA		39705
HPV16	E1	507	11	HFWLQPLADAK		39706
HPV16	E1	499	9	ICFVNSKSH		39707
HPV16	E1	113	8	ICIEKQSR		39708
HPV16	E1	113	11	ICIEKQSRRAK		39709
HPV16	E1	473	11	ILLYGAANTGK		39710
HPV16	E1	194	11	ILNVLKTSNAK		39711
HPV16	E1	568	8	INAGTDSR		39712
HPV16	E1	568	11	INAGTDSRWPY		39713
HPV16	E1	326	8	ISNISEVY		39714
HPV16	E1	369	9	IVDDSEIAY		39715
HPV16	E1	369	10	IVDDSEIAYK		39716
HPV16	E1	369	11	IVDDSEIAYKY		39717
HPV16	E1	401	10	IVKDCATMCR		39718
HPV16	E1	401	11	IVKDCATMCRH		39719
HPV16	E1	204	9	KAAMLAKFK	0.1800	39720
HPV16	E1	111	10	KAICIEKQSR		39721
HPV16	E1	282	11	KCGKNRETIEK		39722
HPV16	E1	403	8	KDCATMCR		39723
HPV16	E1	403	9	KDCATMCRH		39724
HPV16	E1	403	10	KDCATMCRHY	0.0002	39725
HPV16	E1	403	11	KDCATMCRHYK	0.0002	39726
HPV16	E1	400	11	KIVKDCATMCR		39727
HPV16	E1	311	10	KLRSTAAALY		39728
HPV16	E1	285	8	KNRETIEK		39729
HPV16	E1	607	9	KNWKSFFSR		39730
HPV16	E1	610	10	KSFRTWSR		39731
HPV16	E1	483	10	KSLFGMSLMK		39732
HPV16	E1	394	10	KSNSQAKIVK		39733
HPV16	E1	323	11	KTGISNISEVY		39734
HPV16	E1	252	10	KTLLQYCLY		39735
HPV16	E1	208	8	LAKFKELY		39736
HPV16	E1	521	11	LDDATVPCWNY		39737
HPV16	E1	540	11	LDGNLVSMDVK		39738
HPV16	E1	126	9	LFESDSGY		39739
HPV16	E1	485	8	LFGMSLMK		39740
HPV16	E1	70	8	LFTAQEA		39741
HPV16	E1	70	10	LFTAQEAQH		39742

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	70	11	LFTAQEAQHR		39743
HPV16	E1	276	10	LLLVRVKCGK		39744
HPV16	E1	254	8	LLQYCLY		39745
HPV16	E1	254	10	LLQYCLYLH		39746
HPV16	E1	277	9	LLVRKCGK	0.0033	39747
HPV16	E1	277	11	LLVRKCGKNR		39748
HPV16	E1	474	10	LLYGAANTGK		39749
HPV16	E1	195	10	LNVLKTSNAK	0.0002	39750
HPV16	E1	620	9	LSLHEDEK		39751
HPV16	E1	357	9	LSQMVQWAY		39752
HPV16	E1	191	9	LTNINLVK	0.4200	39753
HPV16	E1	243	10	LTPSIADSIK		39754
HPV16	E1	59	10	LTQAETETAH		39755
HPV16	E1	48	11	LVDFIVNDNDY		39756
HPV16	E1	222	9	LVRPFKSNK	1.8000	39757
HPV16	E1	278	8	LVRYKCGK		39758
HPV16	E1	278	10	LVRYKCGKNR		39759
HPV16	E1	544	8	LVSMDDVKH		39760
HPV16	E1	544	9	LVSMDDVKHR	0.0089	39761
HPV16	E1	303	9	MCMMEPPK		39762
HPV16	E1	303	11	MCMMEPPKLR		39763
HPV16	E1	408	10	MCRHYKRAEK		39764
HPV16	E1	408	11	MCRHYKRAEKK		39765
HPV16	E1	306	8	MEPPKLR		39766
HPV16	E1	207	9	MLAKFKELY		39767
HPV16	E1	144	8	MLQVEGRH		39768
HPV16	E1	305	9	MMIEPPKLR	0.0086	39769
HPV16	E1	454	8	MSFLTALK	0.0980	39770
HPV16	E1	454	9	MSFLTALKR		39771
HPV16	E1	420	8	MSMSQWIK		39772
HPV16	E1	420	9	MSMSQWIKY		39773
HPV16	E1	420	10	MSMSQWIKYR		39774
HPV16	E1	422	8	MSQWIKYR		39775
HPV16	E1	422	11	MSQWIKYRCDR		39776
HPV16	E1	273	8	MVVLLVLR		39777
HPV16	E1	273	9	MVVLLLVRY		39778
HPV16	E1	273	10	MVVLLLVRYK		39779
HPV16	E1	569	10	NAGTDSRWPY		39780
HPV16	E1	202	9	NAKAAMLAK	0.0031	39781
HPV16	E1	202	11	NAKAAMLAKFK		39782
HPV16	E1	630	10	NDGDSLPTFK		39783
HPV16	E1	367	11	NDIVDDSEIAY		39784
HPV16	E1	605	11	NDKNWKSFSR		39785
HPV16	E1	597	11	NGNPVYELNDK		39786
HPV16	E1	567	9	NINAGTDSR	0.0002	39787
HPV16	E1	543	8	NLVSMDDVK		39788

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	543	9	NLVSMVDVKH		39789
HPV16	E1	543	10	NLVSMVDVKHR		39790
HPV16	E1	104	8	NNISPLRK		39791
HPV16	E1	386	9	NSNASAFK	0.0110	39792
HPV16	E1	396	8	NSQAKIVK		39793
HPV16	E1	196	9	NVLKTSNAK	0.0015	39794
HPV16	E1	527	11	PCWNYIDDLNR		39795
HPV16	E1	593	10	PFDEGNPVY		39796
HPV16	E1	190	10	PLTNILNLVK		39797
HPV16	E1	302	10	PMCMMIEPPK		39798
HPV16	E1	245	8	PSIADSIK		39799
HPV16	E1	600	8	PVYELNDK		39800
HPV16	E1	600	11	PVYELNDKNWK		39801
HPV16	E1	61	8	QAETETAH		39802
HPV16	E1	495	11	QGSVICFVNSK		39803
HPV16	E1	441	8	QIVMFLRY		39804
HPV16	E1	143	8	QMLQVEGR		39805
HPV16	E1	143	9	QMLQVEGRH		39806
HPV16	E1	419	9	QMSMSQWIK		39807
HPV16	E1	419	10	QMSMSQWIKY	0.0260	39808
HPV16	E1	419	11	QMSMSQWIKYR		39809
HPV16	E1	118	8	QSRAAKRR		39810
HPV16	E1	80	8	RDAVQVLK		39811
HPV16	E1	80	9	RDAVQVLKR		39812
HPV16	E1	80	10	RDAVQVLKRK		39813
HPV16	E1	80	11	RDAVQVLKRKY		39814
HPV16	E1	462	8	RFLQIPK		39815
HPV16	E1	462	9	RFLQIPKK		39816
HPV16	E1	125	10	RLFESDSGY		39817
HPV16	E1	109	9	RLKAICIEK		39818
HPV16	E1	619	10	RLSLHEDEK		39819
HPV16	E1	313	8	RSTAAALY	0.0510	39820
HPV16	E1	313	10	RSTAAALYWY		39821
HPV16	E1	313	11	RSTAAALYWYK		39822
HPV16	E1	615	9	RTWSRLSLH		39823
HPV16	E1	432	9	RVDDGGDWK		39824
HPV16	E1	390	11	SAFLKSNSQAK		39825
HPV16	E1	611	9	SFFSRTWSR		39826
HPV16	E1	455	8	SFLTALKR		39827
HPV16	E1	218	10	SFSELVRPFK		39828
HPV16	E1	99	11	SGCVDNNISPR		39829
HPV16	E1	175	9	SGGEGVSR		39830
HPV16	E1	175	10	SGGEGVSEIH		39831
HPV16	E1	164	8	SGGCSQY		39832
HPV16	E1	161	11	SGSGGGCSQY		39833
HPV16	E1	173	11	SGSGGEGVSR		39834

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	250	9	SIKTLQQY		39835
HPV16	E1	484	9	SLFGMSLMK	7.1000	39836
HPV16	E1	621	8	SLHIEDDK		39837
HPV16	E1	421	8	SMSQWIKY		39838
HPV16	E1	421	9	SMSQWIKYR	0.0280	39839
HPV16	E1	201	10	SNAKAAMLAK		39840
HPV16	E1	387	8	SNASAFK		39841
HPV16	E1	566	10	SNINAGTDSR		39842
HPV16	E1	395	9	SNSQAKIVK		39843
HPV16	E1	314	9	STAAALYWY		39844
HPV16	E1	314	10	STAAALYWYK		39845
HPV16	E1	497	9	SVICFVNSK	0.0002	39846
HPV16	E1	497	11	SVICFVNSKSH		39847
HPV16	E1	315	8	TAAALYWY		39848
HPV16	E1	315	9	TAAALYWYK	20.0000	39849
HPV16	E1	72	8	TAQEAQKH		39850
HPV16	E1	72	9	TAQEAQKQR	0.0025	39851
HPV16	E1	572	9	TDSRWPLYLH		39852
HPV16	E1	572	11	TDSRWPLYLHNR		39853
HPV16	E1	13	8	TGCNGWFY		39854
HPV16	E1	324	10	TGINSISEVY		39855
HPV16	E1	289	8	TIEKLISK		39856
HPV16	E1	253	9	TLLQOYCCLY		39857
HPV16	E1	253	11	TLLQOYCCLYLH		39858
HPV16	E1	407	8	TMCRRHYKR		39859
HPV16	E1	407	11	TMCRRHYKRAEK		39860
HPV16	E1	192	8	TNILNVLK		39861
HPV16	E1	385	10	TNSNASAFK		39862
HPV16	E1	200	11	TSNAKAAMLAK		39863
HPV16	E1	565	11	TSNINAGTDSR		39864
HPV16	E1	433	8	VDDGGDWK		39865
HPV16	E1	370	8	VDDSEIAY		39866
HPV16	E1	370	9	VDDSEIAYK		39867
HPV16	E1	370	10	VDDSEIAYKY		39868
HPV16	E1	49	10	VDFIVNDNDY		39869
HPV16	E1	102	8	VDNNISPR		39870
HPV16	E1	102	10	VDNNISPRLK		39871
HPV16	E1	498	8	VICFVNSK		39872
HPV16	E1	498	10	VICFVNSKSH		39873
HPV16	E1	197	8	VLKTSNAK		39874
HPV16	E1	275	8	VLLLVRYK		39875
HPV16	E1	275	11	VLLLVRYKCGK		39876
HPV16	E1	217	8	VFSSELVR		39877
HPV16	E1	217	11	VFSSELVRPFK		39878
HPV16	E1	545	8	VSMDEVKHIR		39879
HPV16	E1	274	8	VVLLLVRY		39880

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E1	274	9	VVLLVRYK		39881
HPV16	E1	18	10	WFYVEAVVEK	0.3600	39882
HPV16	E1	18	11	WFYVEAVVEKK		39883
HPV16	E1	271	10	WGMVLLLVLR		39884
HPV16	E1	271	11	WGMVLLLVRY		39885
HPV16	E1	425	8	WIKYRCDR		39886
HPV16	E1	339	10	WIKRQTVLQH		39887
HPV16	E1	509	9	WLQPLADAK	0.0002	39888
HPV16	E1	529	9	WNYDDNLR		39889
HPV16	E1	476	8	YGAANTGK		39890
HPV16	E1	333	10	YGDTPWVQR		39891
HPV16	E1	215	10	YGVFSSELR		39892
HPV16	E1	58	11	YLTQAETETAH		39893
HPV16	E1	20	8	YVEAVVEK		39894
HPV16	E1	20	9	YVEAVVEKK		39895
HPV16	E2	270	9	AFNSSIIKGR		39896
HPV16	E2	216	8	ANHPAATH		39897
HPV16	E2	216	10	ANHPAATHTK		39898
HPV16	E2	295	8	ANTLKCLR		39899
HPV16	E2	295	9	ANTLKCLRY		39900
HPV16	E2	295	10	ANTLKCLRYR		39901
HPV16	E2	314	11	AVSSTWHWTGH		39902
HPV16	E2	40	8	CAIYKAR		39903
HPV16	E2	300	8	CLRYRFKK		39904
HPV16	E2	300	9	CLRYRFKKH		39905
HPV16	E2	281	10	CNSNTPIVH		39906
HPV16	E2	126	11	CNTMHTYTNWTH		39907
HPV16	E2	174	9	DAEKYSKNK		39908
HPV16	E2	294	9	DANTLKCLR		39909
HPV16	E2	294	10	DANTLKCLRY		39910
HPV16	E2	294	11	DANTLKCLRYR		39911
HPV16	E2	173	8	DDAEKYSK		39912
HPV16	E2	173	10	DDAEKYSKNK		39913
HPV16	E2	122	9	DGDICNTMIH		39914
HPV16	E2	122	10	DGDICNTMHY		39915
HPV16	E2	124	8	DICNTMIY		39916
HPV16	E2	25	8	DLRDHIDY		39917
HPV16	E2	25	10	DLRDHIDYWK		39918
HPV16	E2	25	11	DLRDHIDYWKH		39919
HPV16	E2	22	8	DSTDLRDH		39920
HPV16	E2	22	11	DSTDLRDHIDY		39921
HPV16	E2	246	10	DTGNPCITTK		39922
HPV16	E2	39	9	ECAIYKAR		39923
HPV16	E2	162	11	EGIRTYFVQFK		39924
HPV16	E2	149	10	EGQVDYYGLY		39925
HPV16	E2	149	11	EGQVDYYGLYY		39926

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E2	209	10	EIRQHLANH		39927
HPV16	E2	74	10	ELQLTLETIY		39928
HPV16	E2	48	9	EMGFKHINH		39929
HPV16	E2	20	8	ENDSTDRL		39930
HPV16	E2	20	10	ENDSTDLRDH		39931
HPV16	E2	80	8	ETIYNSQY		39932
HPV16	E2	233	8	ETQTTIQR		39933
HPV16	E2	233	10	ETQTTIQRPR		39934
HPV16	E2	204	9	EVSSPEIR		39935
HPV16	E2	204	11	EVSSPEIRQH		39936
HPV16	E2	121	10	FDGICNTMH		39937
HPV16	E2	121	11	FDGICNTMHH		39938
HPV16	E2	346	9	FLSQVKIPK		39939
HPV16	E2	271	8	FNSSHKGR		39940
HPV16	E2	168	10	FVQFKDDAEK		39941
HPV16	E2	168	11	FVQFKDDAEKY		39942
HPV16	E2	108	8	GCIKKHGY		39943
HPV16	E2	293	10	GDANTLKCLR		39944
HPV16	E2	293	11	GDANTLKCLRY		39945
HPV16	E2	123	8	GDICNTMH		39946
HPV16	E2	123	9	GDICNTMHH		39947
HPV16	E2	163	10	GRTYFVQFK		39948
HPV16	E2	156	10	GLYYVHEGIR		39949
HPV16	E2	248	8	GNPCHTK		39950
HPV16	E2	248	11	GNPCHTKLLH		39951
HPV16	E2	230	11	GTEETQTTIQR		39952
HPV16	E2	29	9	IIDYWKIIMR		39953
HPV16	E2	214	10	HLANHPAATH		39954
HPV16	E2	290	10	HLKGDANTLK		39955
HPV16	E2	35	9	HMRLECAIY		39956
HPV16	E2	35	10	HMRLECAIYY		39957
HPV16	E2	35	11	HMRLECAIYYK		39958
HPV16	E2	252	8	HTTKLLHR		39959
HPV16	E2	30	8	IDYWKHMR		39960
HPV16	E2	210	9	IIRQHLANH		39961
HPV16	E2	267	9	ILTAFNSSH		39962
HPV16	E2	267	10	ILTAFNSSHK		39963
HPV16	E2	45	8	KAREMGFK		39964
HPV16	E2	45	9	KAREMGFKH		39965
HPV16	E2	299	8	KCLRYREFK		39966
HPV16	E2	299	9	KCLRYREFKK		39967
HPV16	E2	299	10	KCLRYREFKKH		39968
HPV16	E2	172	9	KDDAEKYSK		39969
HPV16	E2	172	11	KDDAEKYSKNK		39970
HPV16	E2	292	8	KGDANTLK		39971
HPV16	E2	292	11	KGDANTLKCLR		39972

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E2	180	8	KNKVWEVH		39973
HPV16	E2	329	9	KSAIVTLTY		39974
HPV16	E2	215	9	LANHPAATH		39975
HPV16	E2	215	11	LANIIPAATHTK		39976
HPV16	E2	4	11	LCQRLNVCQDK		39977
HPV16	E2	8	11	LNVCQDKILTH		39978
HPV16	E2	347	8	LSQVKIPK		39979
HPV16	E2	268	8	LTAFNSSH		39980
HPV16	E2	268	9	LTAFNSSHK		39981
HPV16	E2	268	11	LTAFNSSHKGR		39982
HPV16	E2	103	9	LTAPTGCIK		39983
HPV16	E2	103	10	LTAPTGCICK		39984
HPV16	E2	103	11	LTAPTGCICKH		39985
HPV16	E2	77	11	LTIETIYNSQY		39986
HPV16	E2	335	9	LYDSEWQR		39987
HPV16	E2	49	8	MGFKHINH		39988
HPV16	E2	280	11	NCNSNTPIVH		39989
HPV16	E2	21	9	NDSTDLRDH		39990
HPV16	E2	282	9	NSNTTPIVH		39991
HPV16	E2	282	11	NSNTTPIVHLK		39992
HPV16	E2	84	8	NSQYSNEK		39993
HPV16	E2	296	8	NTLCLRY		39994
HPV16	E2	296	9	NTLCLRYR		39995
HPV16	E2	296	11	NTLCLRYRFK		39996
HPV16	E2	127	10	NTMIYTNWTH		39997
HPV16	E2	284	9	NTTPIVHLK		39998
HPV16	E2	9	10	NVCQDKILTH		39999
HPV16	E2	9	11	NVCQDKILTHY		40000
HPV16	E2	250	9	PCHTTKLLH		40001
HPV16	E2	250	10	PCHTTKLLHR		40002
HPV16	E2	245	8	PDIGNPCH		40003
HPV16	E2	245	11	PDIGNPCHITK		40004
HPV16	E2	266	10	PILTAFNSSH		40005
HPV16	E2	266	11	PILTAFNSSHK		40006
HPV16	E2	106	8	PTGCIKKH		40007
HPV16	E2	106	10	PTGCIKKHGY		40008
HPV16	E2	60	9	PTLAVSKNK		40009
HPV16	E2	12	8	QDKILTHY		40010
HPV16	E2	95	8	QDVSLVY		40011
HPV16	E2	120	11	QFDGICNTMH		40012
HPV16	E2	170	8	QFKDDAEK		40013
HPV16	E2	170	9	QFKDDAEKY		40014
HPV16	E2	170	11	QFKDDAEKYSK		40015
HPV16	E2	345	10	QFLSQVKIPK		40016
HPV16	E2	76	8	QLTLETIY		40017
HPV16	E2	235	8	QTTIQRPR		40018

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E2	151	8	QVDYYGLY		40019
HPV16	E2	151	9	QVDYYGLYY		40020
HPV16	E2	151	11	QVDYYGLYYVH		40021
HPV16	E2	57	10	QVPTLAVSK		40022
HPV16	E2	27	8	RDHIDYWK		40023
HPV16	E2	27	9	RDHIDYWKH		40024
HPV16	E2	27	11	RDHIDYWKHMR		40025
HPV16	E2	343	9	RDQFLSQVK		40026
HPV16	E2	304	9	RFKKHCTLY		40027
HPV16	E2	37	8	RLECAIYY		40028
HPV16	E2	37	9	RLECAIYYK		40029
HPV16	E2	37	11	RLECAIYYKAR		40030
HPV16	E2	7	8	RLNVCQDK		40031
HPV16	E2	242	11	RSEPTGNPCH		40032
HPV16	E2	165	8	RTYFVQFK		40033
HPV16	E2	330	8	SAIVILTY		40034
HPV16	E2	202	11	SNEVSSPEIR		40035
HPV16	E2	283	8	SNTTPIVH		40036
HPV16	E2	283	10	SNTTPIVHLK		40037
HPV16	E2	206	9	SSPEIRQH		40038
HPV16	E2	316	9	SSTWHWTGH		40039
HPV16	E2	23	10	STDLRDHIDY		40040
HPV16	E2	317	8	STWHWTGH		40041
HPV16	E2	317	11	STWHWTGHNVK		40042
HPV16	E2	144	11	SVTVVEGQVDY		40043
HPV16	E2	269	8	TAFNSSHK		40044
HPV16	E2	269	10	TAFNSSHKGR		40045
HPV16	E2	104	8	TAPTGCIC		40046
HPV16	E2	104	9	TAPTGCICK		40047
HPV16	E2	104	10	TAPTGCICKKH		40048
HPV16	E2	313	8	TAVSSTWH		40049
HPV16	E2	24	9	TDLRDHIDY		40050
HPV16	E2	24	11	TDLRDHIDYWK		40051
HPV16	E2	107	9	TGCIKKHGY		40052
HPV16	E2	322	8	TGHNVKHK		40053
HPV16	E2	247	9	TGNPCHTK		40054
HPV16	E2	81	11	TIYNSQYSNEK		40055
HPV16	E2	61	8	TLAVSKNK		40056
HPV16	E2	78	10	LETHYNSQY		40057
HPV16	E2	297	8	TLKCLRYR		40058
HPV16	E2	297	10	TLKCLRYRFK		40059
HPV16	E2	297	11	TLKCLRYRFKK		40060
HPV16	E2	93	10	TLQDVSLEVY		40061
HPV16	E2	334	10	TLTYDSEWQR		40062
HPV16	E2	310	11	TLYTAVSSTWH		40063
HPV16	E2	128	9	TMHYTNWTH		40064

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E2	128	11	TMHYTNWTHIY		40065
HPV16	E2	285	8	TTPIVILK		40066
HPV16	E2	146	9	TVVEGQVDY		40067
HPV16	E2	146	10	TVVEGQVDYY		40068
HPV16	E2	10	9	VCQDKILTH		40069
HPV16	E2	10	10	VCQDKILTHY		40070
HPV16	E2	152	8	VDYYGLYY		40071
HPV16	E2	152	10	VDYYGLYYVH		40072
HPV16	E2	205	8	VSSPEIR		40073
HPV16	E2	205	10	VSSPEIRQH		40074
HPV16	E2	315	10	VSSTWHWTGH		40075
HPV16	E2	333	11	VTLYDSEWQR		40076
HPV16	E2	145	10	VTVEGQVDY		40077
HPV16	E2	145	11	VTVEGQVDYY		40078
HPV16	E2	147	8	VVEGQVDY		40079
HPV16	E2	147	9	VVEGQVDYY		40080
HPV16	E2	58	9	VVPTLAVSK		40081
HPV16	E2	58	11	VVPTLAVSKNK		40082
HPV16	E2	321	8	WTGHNVKH		40083
HPV16	E2	321	9	WTGHNVKHK		40084
HPV16	E2	92	11	WTLQDVSLEVY		40085
HPV16	E2	167	11	YFVQFKDDAEK		40086
HPV16	E2	155	11	YGLYYVHEGIR		40087
HPV16	E2	102	10	YLTAPTGCICK		40088
HPV16	E2	102	11	YNSQYSNEK		40089
HPV16	E2	83	9	YSKNKVWEVH		40090
HPV16	E2	178	10	YTAVSSTWH		40091
HPV16	E2	312	9	YTNWTHIY		40092
HPV16	E2	131	8	YVHEGIRTY		40093
HPV16	E2	159	9	AASAFRCFIVY		40094
HPV16	E5	53	11	AFRCFIVY		40095
HPV16	E5	56	8	ASAFRCFIVY		40096
HPV16	E5	54	10	CFIVYIFVY		40097
HPV16	E5	59	10	CVLLCVCLLIR		40098
HPV16	E5	20	11	FIVYIFVY		40099
HPV16	E5	60	9	FLIITHAR		40100
HPV16	E5	72	8	FVYIPLFLIH		40101
HPV16	E5	66	10	IFVYIPLFLIH		40102
HPV16	E5	65	11	ITAASAFR		40103
HPV16	E5	51	8	IVYIIFVY		40104
HPV16	E5	61	8	LCVCLLIR		40105
HPV16	E5	23	8	LFLIITHAR		40106
HPV16	E5	71	9	LLCVCLLIR		40107
HPV16	E5	22	9	LLSVSTY		40108
HPV16	E5	32	8	LLWITAASAFR		40109
HPV16	E5	48	11			40110

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E5	70	8	PLFLIHTH		40111
HPV16	E5	70	10	PLFLIHTIAR		40112
HPV16	E5	31	9	PLLLSVSTY		40113
HPV16	E5	58	11	RGHVIYHIVY		40114
HPV16	E5	55	9	SAFRCFIVY		40115
HPV16	E5	21	10	VLLCVCLLIR		40116
HPV16	E5	50	9	WITAASAFR		40117
HPV16	E5	68	8	YIPLFLIH		40118
HPV16	E5	68	10	YIPLFLIHTH		40119
HPV16	E6	53	9	AFRDLICIVY	0.0001	40120
HPV16	E6	53	10	AFRDLICIVYR		40121
HPV16	E6	7	9	AMFQDPQER	0.0320	40122
HPV16	E6	7	11	AMFQDPQERPR		40123
HPV16	E6	68	8	AVCDKCLK	0.0110	40124
HPV16	E6	68	10	AVCDKCLKFY	0.0190	40125
HPV16	E6	146	8	CCRSSRTR		40126
HPV16	E6	146	9	CCRSSRTRR	0.0001	40127
HPV16	E6	70	8	CDKCLKFY		40128
HPV16	E6	70	10	CDKCLKFYSK		40129
HPV16	E6	58	10	CIVYRDGNPY	0.0004	40130
HPV16	E6	73	11	CLKFYKISEY		40131
HPV16	E6	143	9	CMSCCRSSR	0.0001	40132
HPV16	E6	143	11	CMSCCRSSRTR		40133
HPV16	E6	23	9	CTELQTTIH	0.0001	40134
HPV16	E6	37	10	CVYCKQQLLR	0.0005	40135
HPV16	E6	37	11	CVYCKQQLRR		40136
HPV16	E6	51	11	DFAFRDLICIVY		40137
HPV16	E6	63	10	DGNPYAVCDK		40138
HPV16	E6	32	8	DILECVY		40139
HPV16	E6	32	10	DILECVYCK	0.0210	40140
HPV16	E6	105	11	DLIRCNCQK		40141
HPV16	E6	36	11	ECVYCKQQLLR		40142
HPV16	E6	48	8	EVYDFAFR	0.0025	40143
HPV16	E6	52	10	FAFRDLICIVY		40144
HPV16	E6	52	11	FAFRDLICIVYR		40145
HPV16	E6	64	9	GNPYAVCDK	0.0001	40146
HPV16	E6	92	8	GTTLEQQY		40147
HPV16	E6	92	10	GTTLEQQYNK	0.0700	40148
HPV16	E6	31	9	HDILECVY	0.0001	40149
HPV16	E6	31	11	HDILECVYCK		40150
HPV16	E6	125	9	ILDKKQRFH	0.0001	40151
HPV16	E6	133	10	HNIRGRWTGR		40152
HPV16	E6	33	9	IILECVYCK	0.0190	40153
HPV16	E6	34	8	IILECVYCK		40154
HPV16	E6	80	9	ISEYRIIYCY	0.0150	40155
HPV16	E6	59	9	IVYRDGNPY	0.1500	40156

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E6	72	8	KCLKFYSK		40157
HPV16	E6	75	9	KFYSKISEY	0.0002	40158
HPV16	E6	75	10	KFYSKISEYR	0.0002	40159
HPV16	E6	75	11	KFYSKISEYRH		40160
HPV16	E6	79	8	KISEYRHY		40161
HPV16	E6	79	10	KISEYRHYCY	0.0038	40162
HPV16	E6	57	11	LCIVYRDGNPY		40163
HPV16	E6	117	8	LCPEEKQR		40164
HPV16	E6	117	9	LCPEEKQRH	0.0001	40165
HPV16	E6	22	10	LCTELQTTIH		40166
HPV16	E6	126	8	LDKKQRFH		40167
HPV16	E6	126	11	LDKKQRFHNIR		40168
HPV16	E6	107	9	LIRCNCQK	0.0009	40169
HPV16	E6	106	10	LLIRCNCQK	0.1800	40170
HPV16	E6	8	8	MFQDPQER		40171
HPV16	E6	8	10	MFQDPQERPR		40172
HPV16	E6	8	11	MFQDPQERPRK		40173
HPV16	E6	144	8	MSCCRSSR		40174
HPV16	E6	144	10	MSCCRSSRTR		40175
HPV16	E6	144	11	MSCCRSSRTRR		40176
HPV16	E6	112	11	NCQKPLCPEEK	0.0005	40177
HPV16	E6	134	9	NIRGRWTGR		40178
HPV16	E6	102	8	PLCDLLIR		40179
HPV16	E6	116	9	PLCPEEKQR	0.0005	40180
HPV16	E6	10	10	PLCPEEKQRH		40181
HPV16	E6	10	8	QDPQERPR		40182
HPV16	E6	10	9	QDPQERPRK		40183
HPV16	E6	21	11	QLCTELQTTIH		40184
HPV16	E6	43	8	QLLRREYV		40185
HPV16	E6	142	10	RCMSCCRSSR		40186
HPV16	E6	62	11	RDGNPYAVCDK		40187
HPV16	E6	55	8	RDLICVYR		40188
HPV16	E6	131	8	RFINIRGR		40189
HPV16	E6	5	11	RTAMFQDPQER		40190
HPV16	E6	145	9	SCCRSSRTR	0.0001	40191
HPV16	E6	145	10	SCCRSSRTRR		40192
HPV16	E6	89	11	SLYGTLEQQY		40193
HPV16	E6	6	10	TAMFQDPQER		40194
HPV16	E6	140	9	TGRCMSCCR	0.0001	40195
HPV16	E6	29	11	THIDILECVY		40196
HPV16	E6	94	8	TLEQQYNK		40197
HPV16	E6	93	9	TTLEQQYNK	0.2900	40198
HPV16	E6	69	9	VCDKCLKFY	0.0002	40199
HPV16	E6	69	11	VCDKCLKFYSK		40200
HPV16	E6	139	10	WTGRCMSCCR	0.0008	40201
HPV16	E6	67	9	YAVCDKCLK	0.0010	40202

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	E6	67	11	YAVCDKCLKFY		40203
HPV16	E6	39	8	YCKQQLLR		40204
HPV16	E6	39	9	YCKQQLRR	0.0001	40205
HPV16	E6	91	9	YGTLEQQY		40206
HPV16	E6	91	11	YGTLEQQYNK		40207
HPV16	E6	99	11	YKPLCDLLR		40208
HPV16	E6	77	8	YKISEYR		40209
HPV16	E6	77	9	YKISEYRH		40210
HPV16	E6	77	10	YKISEYRHY	0.0001	40211
HPV16	E7	42	8	AGQAEPR		40212
HPV16	E7	42	10	AGQAEPRAH		40213
HPV16	E7	42	11	AGQAEPRAHY		40214
HPV16	E7	58	9	CKCDSTLR	0.0001	40215
HPV16	E7	68	10	CVQSTHVDIR	0.0001	40216
HPV16	E7	39	11	DGPAGQAEPR		40217
HPV16	E7	14	10	DLQPETDLY	0.0002	40218
HPV16	E7	4	8	DTPTLHEY		40219
HPV16	E7	18	8	ETDLYCY	0.0001	40220
HPV16	E7	57	10	FCCKCDSTLR		40221
HPV16	E7	3	9	GDTPTLHEY		40222
HPV16	E7	88	10	GIVCPICSQK	0.0670	40223
HPV16	E7	2	8	HGDTPTLH		40224
HPV16	E7	2	10	HGDTPTLHEY	0.0001	40225
HPV16	E7	89	9	IVCPICSQK	0.0065	40226
HPV16	E7	67	11	LCVQSTHVDIR		40227
HPV16	E7	13	11	LDLQPETDLY		40228
HPV16	E7	87	11	LGIVCPICSQK		40229
HPV16	E7	53	8	NIVTFCK		40230
HPV16	E7	41	9	PAGQAEPR		40231
HPV16	E7	41	11	PAGQAEPRAH		40232
HPV16	E7	44	8	QAEPRAH		40233
HPV16	E7	44	9	QAEPRAHY	0.0002	40234
HPV16	E7	70	8	QSTHVDIR		40235
HPV16	E7	66	8	RLCVQSTH		40236
HPV16	E7	63	11	STLRVCVQSTH		40237
HPV16	E7	56	11	TFCKCDSTLR		40238
HPV16	E7	64	10	TLRLCVQSTH		40239
HPV16	E7	90	8	VCPCSQK		40240
HPV16	E7	52	9	YNIPTFCK	0.0022	40241
HPV16	L1	372	10	AAITSETTY		40242
HPV16	L1	372	11	AAITSETTYK		40243
HPV16	L1	162	9	AANAGVDNR		40244
HPV16	L1	453	11	ACQKITPPAPK		40245
HPV16	L1	127	9	ACVGVVEVGR		40246
HPV16	L1	483	10	ADLDQFPLGR		40247
HPV16	L1	483	11	ADLDQFPLGRK		40248

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L1	411	8	ADVMTYIH		40249
HPV16	L1	498	8	AGLKAKPK		40250
HPV16	L1	63	11	AGTSRLAVGH		40251
HPV16	L1	373	9	AISTSETTY		40252
HPV16	L1	373	10	AISTSETTYK		40253
HPV16	L1	233	11	AMDFTLQANK		40254
HPV16	L1	163	8	ANAGVDNR		40255
HPV16	L1	310	8	ANLASSNY		40256
HPV16	L1	292	11	AVGENVPDDL		40257
HPV16	L1	70	10	AVGHPYFPIK		40258
HPV16	L1	70	11	AVGHPYFPIKK		40259
HPV16	L1	371	11	CAAISETTY		40260
HPV16	L1	251	10	CTSICKYPDY		40261
HPV16	L1	128	8	CVGVEVGR		40262
HPV16	L1	329	9	DAQFNKPY		40263
HPV16	L1	153	9	DTENASAY		40264
HPV16	L1	235	9	DFTLQANK		40265
HPV16	L1	249	8	DICTSICK		40266
HPV16	L1	249	9	DICTSICKY		40267
HPV16	L1	484	9	DLDOFPLGR		40268
HPV16	L1	484	10	DLDOFPLGRK		40269
HPV16	L1	397	10	DLQIFQLCK		40270
HPV16	L1	168	10	DNRECISMDY		40271
HPV16	L1	168	11	DNRECISMDYK		40272
HPV16	L1	270	8	DSLFFYL		40273
HPV16	L1	270	9	DSLFFYLRR		40274
HPV16	L1	154	8	DTENASAY		40275
HPV16	L1	113	11	DTSFYNPDTQR		40276
HPV16	L1	171	8	ECISMDYK		40277
HPV16	L1	15	8	ENDVNVYH		40278
HPV16	L1	295	8	ENVPDDL		40279
HPV16	L1	295	10	ENVPDDL		40280
HPV16	L1	378	10	ETTYKNTNFK		40281
HPV16	L1	109	9	FGPDTSFY		40282
HPV16	L1	5	10	FIYILVITCY		40283
HPV16	L1	494	8	FLQAGLK		40284
HPV16	L1	494	10	FLQAGLKAK		40285
HPV16	L1	333	9	FNKPYWLQR		40286
HPV16	L1	236	8	FTLQANK		40287
HPV16	L1	282	8	FVRHLFNR		40288
HPV16	L1	446	11	FVTSQAIACQK		40289
HPV16	L1	356	9	FVTVDVTR		40290
HPV16	L1	186	9	GCKPPIGEH		40291
HPV16	L1	269	9	GDSLFFYL		40292
HPV16	L1	269	10	GDSLFFYLRR		40293
HPV16	L1	110	8	GFPDTSFY		40294

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L1	437	8	GGTLEDTY		40295
HPV16	L1	437	9	GGTLEDTYR		40296
HPV16	L1	142	10	GISGHPLLNK		40297
HPV16	L1	93	8	GLQYRVFR		40298
HPV16	L1	93	10	GLQYRVFRIH		40299
HPV16	L1	307	11	GSTANLASSNY		40300
HPV16	L1	438	8	GTTLEDTYR		40301
HPV16	L1	64	10	GTSRLLAUGH		40302
HPV16	L1	254	9	ICKYPDYIK		40303
HPV16	L1	250	8	ICTSICKY		40304
HPV16	L1	250	11	ICTSICKYPDY		40305
HPV16	L1	332	10	IFNKPYWLQR		40306
HPV16	L1	185	10	IGCKPPIGEH		40307
HPV16	L1	86	11	ILVPKVSGLQY		40308
HPV16	L1	143	9	ISGHPLLNK		40309
HPV16	L1	374	8	ISTSETTY		40310
HPV16	L1	374	9	ISTSETTYK		40311
HPV16	L1	11	11	ITCYENDVNVY		40312
HPV16	L1	407	10	ITLTADVMTY		40313
HPV16	L1	501	10	KAKPKFTLGK		40314
HPV16	L1	501	11	KAKPKFTLGKR		40315
HPV16	L1	108	10	KFGPDTSFY		40316
HPV16	L1	493	9	KFLLOAGLK		40317
HPV16	L1	493	11	KFLLOAGLKAK		40318
HPV16	L1	505	8	KFTLGKRRK		40319
HPV16	L1	406	11	KITLTADVMTY		40320
HPV16	L1	151	11	KLDDTENASAY		40321
HPV16	L1	382	8	KNTNFKEY		40322
HPV16	L1	382	10	KNTNFKEYLR		40323
HPV16	L1	90	11	KNTNFKEYLRH		40324
HPV16	L1	90	8	KVSGLQYR		40325
HPV16	L1	90	11	KVSGLQYRVFR		40326
HPV16	L1	46	8	KVSTDEY		40327
HPV16	L1	46	11	KVSTDEYVAR		40328
HPV16	L1	69	11	LAVGHYFPIK		40329
HPV16	L1	152	10	LDDTENASAY		40330
HPV16	L1	248	9	LDICTSICK		40331
HPV16	L1	248	10	LDICTSICKY		40332
HPV16	L1	485	8	LDQFPLGR		40333
HPV16	L1	485	9	LDQFPLGRK		40334
HPV16	L1	355	10	LFVTVDITR		40335
HPV16	L1	139	8	LGVGISGH		40336
HPV16	L1	184	11	LIGCKPPIGEH		40337
HPV16	L1	68	8	LLAVGHPY		40338
HPV16	L1	495	9	LLQAGLKAK		40339
HPV16	L1	495	11	LLQAGLKAKPK		40340

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L1	409	8	LTADVMY		40341
HPV16	L1	409	10	LTADVMYIH		40342
HPV16	L1	87	10	LVPKVSGLQY		40343
HPV16	L1	87	11	LVPKVSGLQYR		40344
HPV16	L1	234	10	MDFTTLQANK		40345
HPV16	L1	281	9	MFVRHLENR		40346
HPV16	L1	325	11	MVTSDAQIFNK		40347
HPV16	L1	385	8	NFKEYLRH		40348
HPV16	L1	58	10	NIYYHAGTSR		40349
HPV16	L1	83	8	NNKILVPK		40350
HPV16	L1	82	9	NNKILVPK		40351
HPV16	L1	383	9	NTNFKEYLR		40352
HPV16	L1	383	10	NTNFKEYLRH		40353
HPV16	L1	296	9	NVPDDLVIK		40354
HPV16	L1	460	9	PAPKEDPLK		40355
HPV16	L1	460	10	PAPKEDPLKK		40356
HPV16	L1	460	11	PAPKEDPLKKY		40357
HPV16	L1	258	11	PDYIKMVSEPY		40358
HPV16	L1	436	9	PGGTLEDY		40359
HPV16	L1	436	10	PGGTLEDYR		40360
HPV16	L1	190	8	PIGEHWGK		40361
HPV16	L1	77	9	PIKKPNNK		40362
HPV16	L1	247	10	PLDICTSICK		40363
HPV16	L1	247	11	PLDICTSICKY		40364
HPV16	L1	138	9	PLGVGISGH		40365
HPV16	L1	81	10	PNNKILVPK		40366
HPV16	L1	515	11	PTSSSTSTAK		40367
HPV16	L1	43	11	PVSKVVSTDEY		40368
HPV16	L1	497	9	QAGLKAKPK		40369
HPV16	L1	450	8	QAIAQCQKH		40370
HPV16	L1	399	8	QFIFQLCK		40371
HPV16	L1	331	11	QIFNKPYWLQR		40372
HPV16	L1	181	8	QLCLIGCK		40373
HPV16	L1	354	11	QLFVTVVDITR		40374
HPV16	L1	280	10	QMFVRHLENR		40375
HPV16	L1	179	10	QTQLCLIGCK		40376
HPV16	L1	100	9	RHLPDPNK		40377
HPV16	L1	67	9	RLAVGHPY		40378
HPV16	L1	482	11	SADLDQFPLGR		40379
HPV16	L1	328	8	SDAQIFNK		40380
HPV16	L1	328	10	SDAQIFNKPY		40381
HPV16	L1	115	9	SFYNPDTQR		40382
HPV16	L1	144	8	SGHPLLNK		40383
HPV16	L1	92	9	SGLQYRVFR		40384
HPV16	L1	92	11	SGLQYRVFRIH		40385
HPV16	L1	253	8	SICKYDPY		40386

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L1	253	10	SICKYPDYIK		40387
HPV16	L1	271	8	SLFFYLRR		40388
HPV16	L1	28	11	SLWLPSEATVY		40389
HPV16	L1	518	8	SSTSTTAK		40390
HPV16	L1	518	9	SSTSTAKR		40391
HPV16	L1	518	10	SSTSTAKRK		40392
HPV16	L1	518	11	SSTSTAKRKK		40393
HPV16	L1	308	10	STANLASSNY		40394
HPV16	L1	49	8	STDEYVAR		40395
HPV16	L1	375	8	STSEITYK		40396
HPV16	L1	519	8	STSTAKR		40397
HPV16	L1	519	9	STSTAKRK		40398
HPV16	L1	519	10	STSTAKRKK		40399
HPV16	L1	519	11	STSTAKRKKR		40400
HPV16	L1	521	8	STAKRKK		40401
HPV16	L1	521	9	STAKRKKR		40402
HPV16	L1	521	10	STAKRKKRK		40403
HPV16	L1	410	9	TADVMTYIH		40404
HPV16	L1	523	8	TAKRKKR		40405
HPV16	L1	309	9	TANLASSNY		40406
HPV16	L1	12	10	TCYENDVNVY		40407
HPV16	L1	12	11	TCYENDVNVYH		40408
HPV16	L1	50	11	TDEYVARTNIY		40409
HPV16	L1	4	11	TFIYILVITY		40410
HPV16	L1	471	8	TFWEVNLK		40411
HPV16	L1	471	10	TFWEVNLKEK		40412
HPV16	L1	408	9	TLTADVMTY		40413
HPV16	L1	408	11	TLTADVMTYIH		40414
HPV16	L1	384	8	TNFKEYLR		40415
HPV16	L1	384	9	TNFKEYLRH		40416
HPV16	L1	57	11	TNIYHAGTSR		40417
HPV16	L1	327	9	TSDAQIFNK		40418
HPV16	L1	327	11	TSDAQIFNKPY		40419
HPV16	L1	114	10	TSFYNPDTQR		40420
HPV16	L1	252	9	TSICKYPDY		40421
HPV16	L1	252	11	TSICKYPDYIK		40422
HPV16	L1	448	9	TSQAIAQCK		40423
HPV16	L1	448	10	TSQAIAQCKH		40424
HPV16	L1	65	9	TSRLAVGH		40425
HPV16	L1	65	11	TSRLAVGHPIY		40426
HPV16	L1	517	9	TSSTSTAK		40427
HPV16	L1	517	10	TSSTSTAKR		40428
HPV16	L1	517	11	TSSTSTAKRK		40429
HPV16	L1	520	8	TSTAKRK		40430
HPV16	L1	520	9	TSTAKRKK		40431
HPV16	L1	520	10	TSTAKRKKR		40432

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L1	520	11	TSSTAKRKRK		40433
HPV16	L1	522	8	TTAKRKRK		40434
HPV16	L1	522	9	TTAKRKRK		40435
HPV16	L1	516	10	TTSSTSTAK		40436
HPV16	L1	516	11	TTSSTSTAKR		40437
HPV16	L1	379	9	TTYKNTNFK		40438
HPV16	L1	379	11	TTYKNTNFKY		40439
HPV16	L1	36	11	TVYLPVPVSK		40440
HPV16	L1	54	8	VARTNIYY		40441
HPV16	L1	54	9	VARTNIYYH		40442
HPV16	L1	167	11	VDNRECISMDY		40443
HPV16	L1	98	11	VERHLDPNK		40444
HPV16	L1	293	10	VGENVPDDL		40445
HPV16	L1	71	9	VGHYFPIK		40446
HPV16	L1	71	10	VGHYFPIKK		40447
HPV16	L1	141	11	VGISGHPLLNK		40448
HPV16	L1	91	10	VSLQYRVFR		40449
HPV16	L1	44	10	VSKVSTDEY		40450
HPV16	L1	48	9	VSTDEYVAR		40451
HPV16	L1	326	10	VTSDAQFNK		40452
HPV16	L1	447	10	VTSQAIACOK		40453
HPV16	L1	447	11	VTSQAIACQKH		40454
HPV16	L1	357	8	VTVVDTR		40455
HPV16	L1	47	10	VVSTDEYVAR		40456
HPV16	L1	126	10	WACVGEVGR		40457
HPV16	L1	30	9	WLPSEATVY		40458
HPV16	L1	338	8	WLQRAQGH		40459
HPV16	L1	161	10	YAANAGVDNR		40460
HPV16	L1	396	11	YDLQFIFQLCK		40461
HPV16	L1	75	11	YFPIKPNNNK		40462
HPV16	L1	268	8	YGDSLFFY		40463
HPV16	L1	268	10	YGDSLFFYLR		40464
HPV16	L1	268	11	YGDSLFFYLRR		40465
HPV16	L1	260	9	YIKMVSEPY		40466
HPV16	L1	7	8	YILVITCY		40467
HPV16	L1	38	9	YLPVPVPSK		40468
HPV16	L1	389	8	YLRHGEEY		40469
HPV16	L1	275	10	YLRREQMFVR		40470
HPV16	L1	275	11	YLRREQMFVRH		40471
HPV16	L1	470	9	YTFWEVNLK		40472
HPV16	L1	470	11	YTFWEVNLKEK		40473
HPV16	L1	53	8	YVARTNIY		40474
HPV16	L1	53	9	YVARTNIYY		40475
HPV16	L1	53	10	YVARTNIYYH		40476
HPV16	L2	441	9	ADAGDFYLH		40477
HPV16	L2	241	8	AFITPTK		40478

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L2	443	10	AGDFYLHPSY		40479
HPV16	L2	443	11	AGDFYLHPSYY		40480
HPV16	L2	25	11	AGTCPPDIIPK		40481
HPV16	L2	288	10	ALIRPALTSR		40482
HPV16	L2	288	11	ALIRPALTSRR		40483
HPV16	L2	356	11	ALPTSINNGLY		40484
HPV16	L2	293	10	ALTSRRTGIR		40485
HPV16	L2	293	11	ALTSRRTGIRY		40486
HPV16	L2	396	11	ANTTIPGGAY		40487
HPV16	L2	13	8	ASATQLYK		40488
HPV16	L2	13	11	ASATQLYKTCK		40489
HPV16	L2	82	9	ATDTLAPVR		40490
HPV16	L2	15	9	ATQLYKTCK		40491
HPV16	L2	442	8	DAGDFYLH		40492
HPV16	L2	442	11	DAGDFYLHPSY		40493
HPV16	L2	282	9	DFLDIVALH		40494
HPV16	L2	282	10	DFLDIVALHR		40495
HPV16	L2	445	8	DFYLHPSY		40496
HPV16	L2	445	9	DFYLHPSYY		40497
HPV16	L2	31	9	DIIPKVEGK		40498
HPV16	L2	258	10	EGIDVDNTLY		40499
HPV16	L2	340	10	ELQHTPSTY		40500
HPV16	L2	242	11	FITPTKLITY		40501
HPV16	L2	283	8	FLDIVALH		40502
HPV16	L2	283	9	FLDIVALHR		40503
HPV16	L2	181	11	FTLSSTISTH		40504
HPV16	L2	321	8	GAKVHYYY		40505
HPV16	L2	444	9	GDFYLHPSY		40506
HPV16	L2	444	10	GDFYLHPSYY		40507
HPV16	L2	259	9	GIDVDNTLY		40508
HPV16	L2	59	11	GIGTSGTGGR		40509
HPV16	L2	300	10	GIRYSRIGNK		40510
HPV16	L2	226	11	GLYSRTTQQVK		40511
HPV16	L2	307	9	GNKQTLRTR		40512
HPV16	L2	63	10	GSRTGGRTGY		40513
HPV16	L2	218	11	GSRPVARLGLY		40514
HPV16	L2	26	10	GTCPPDIIPK		40515
HPV16	L2	65	8	GTGGRTGY		40516
HPV16	L2	61	9	GTSGTGGR		40517
HPV16	L2	440	8	IADAGDFY		40518
HPV16	L2	440	10	IADAGDFYLH		40519
HPV16	L2	41	8	IADQLQY		40520
HPV16	L2	260	8	IDVDNTLY		40521
HPV16	L2	320	8	IGAKVHYYY		40522
HPV16	L2	320	9	IGAKVHYYY		40523
HPV16	L2	306	8	IGNKQTLR		40524

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L2	306	10	IGNKQTLRTR		40525
HPV16	L2	60	10	IGTSGTGGR		40526
HPV16	L2	439	9	IIADAGDFY		40527
HPV16	L2	439	11	IIADAGDFYLH		40528
HPV16	L2	32	8	IIPKVEGK		40529
HPV16	L2	361	9	INNGLYDIY		40530
HPV16	L2	148	11	INNTVTVTTH		40531
HPV16	L2	344	11	ITPSTYTTTSH		40532
HPV16	L2	243	10	ITTPTKLITY		40533
HPV16	L2	250	8	ITYDNPAY		40534
HPV16	L2	430	8	IVPGSPQY		40535
HPV16	L2	248	10	KLITYDNPAY		40536
HPV16	L2	318	8	KSIGAKVH		40537
HPV16	L2	318	9	KSIGAKVIHY		40538
HPV16	L2	318	10	KSIGAKVIHY		40539
HPV16	L2	318	11	KSIGAKVHYYY		40540
HPV16	L2	39	10	KTIADQILQY		40541
HPV16	L2	284	8	LDIVALHR		40542
HPV16	L2	427	11	LPIVPGSPQY		40543
HPV16	L2	249	9	LITYDNPAY		40544
HPV16	L2	183	9	LSSSTISH		40545
HPV16	L2	183	11	LSSSTISTHNY		40546
HPV16	L2	294	9	LTSRRTGIR		40547
HPV16	L2	294	10	LTSRRTGIRY		40548
HPV16	L2	454	8	MLRKRKR		40549
HPV16	L2	454	11	MLRKRKRRLPY		40550
HPV16	L2	362	8	NNGLYDIY		40551
HPV16	L2	149	10	NNVTVTVTTH		40552
HPV16	L2	397	10	NTTIPFGGAY		40553
HPV16	L2	150	9	NTVTVTVTTH		40554
HPV16	L2	240	9	PAFITPTK		40555
HPV16	L2	292	11	PALTSRRTGIR		40556
HPV16	L2	281	10	PDFLDIVALH		40557
HPV16	L2	281	11	PDFLDIVALHR		40558
HPV16	L2	30	10	PDIPKVEGK		40559
HPV16	L2	217	8	PGSRPVAR		40560
HPV16	L2	215	10	PIGSRPVAR		40561
HPV16	L2	429	9	PIVPGSPQY		40562
HPV16	L2	386	8	PSTLSGY		40563
HPV16	L2	346	9	PSTYTTTSII		40564
HPV16	L2	383	11	PSVPSTLSGY		40565
HPV16	L2	450	8	PSYMLRK		40566
HPV16	L2	450	9	PSYMLRKR		40567
HPV16	L2	450	10	PSYMLRKR		40568
HPV16	L2	450	11	PSYMLRKR		40569
HPV16	L2	80	11	PTATDTLAPVR		40570

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L2	172	9	PTPAETGGH		40571
HPV16	L2	358	9	PTSINNGLY		40572
HPV16	L2	221	8	PVARLGLY		40573
HPV16	L2	221	10	PVARLGLYSR		40574
HPV16	L2	342	8	QTTPSTY		40575
HPV16	L2	310	9	QTLTRSGK		40576
HPV16	L2	12	8	RASATQLY		40577
HPV16	L2	12	9	RASATQLYK		40578
HPV16	L2	305	9	RIGNKQTLR		40579
HPV16	L2	305	11	RIGNKQTLRTR		40580
HPV16	L2	5	8	RSKRTKR		40581
HPV16	L2	315	9	RSGKSIGAK		40582
HPV16	L2	315	11	RSGKSIGAKVH		40583
HPV16	L2	298	8	RTGIRYSR		40584
HPV16	L2	69	10	RTGYPLGTR		40585
HPV16	L2	9	11	RTKRASATQLY		40586
HPV16	L2	313	11	RTRSGKSIGAK		40587
HPV16	L2	14	10	SATQLYKTCK		40588
HPV16	L2	316	8	SGKSIGAK		40589
HPV16	L2	316	10	SGKSIGAKVH		40590
HPV16	L2	316	11	SGKSIGAKVHY		40591
HPV16	L2	64	9	SGTGGRTGY		40592
HPV16	L2	319	8	SIGAKVHY		40593
HPV16	L2	319	9	SIGAKVHY		40594
HPV16	L2	319	10	SIGAKVHY		40595
HPV16	L2	360	10	SINNGLYDIY		40596
HPV16	L2	184	8	SSSTISTH		40597
HPV16	L2	184	10	SSSTISTHNY		40598
HPV16	L2	185	9	SSTISTHNY		40599
HPV16	L2	212	9	SSTPIPGSR		40600
HPV16	L2	186	8	STISTHNY		40601
HPV16	L2	213	8	STPIPGSR		40602
HPV16	L2	347	8	STYTTTSH		40603
HPV16	L2	384	10	SVPSTLSGY		40604
HPV16	L2	81	10	TATDTLAPVR		40605
HPV16	L2	27	9	TCPPDIIPK		40606
HPV16	L2	83	8	TDILAPVR		40607
HPV16	L2	299	11	TGIRYSRIGNK		40608
HPV16	L2	62	8	TGSGTGGR		40609
HPV16	L2	62	11	TGSGTGGRRTGY		40610
HPV16	L2	70	9	TGYIPLGTR		40611
HPV16	L2	40	9	TIADQILQY		40612
HPV16	L2	438	10	TIADAGDFY		40613
HPV16	L2	399	8	TIPFGGAY		40614
HPV16	L2	311	8	TLTRSGK		40615
HPV16	L2	182	10	TLSSSTISTH		40616

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV16	L2	359	8	TSINNGLY		40617
HPV16	L2	359	11	TSINNGLYDIY		40618
HPV16	L2	295	8	TSRRTGIR		40619
HPV16	L2	295	9	TSRRTGIRY		40620
HPV16	L2	295	11	TSRRTGIRYSR		40621
HPV16	L2	211	10	TSSTPIGSR		40622
HPV16	L2	398	9	TTIPEGGAY		40623
HPV16	L2	244	9	TTPTKLITY		40624
HPV16	L2	151	8	TVTTVTTH		40625
HPV16	L2	287	11	VALHRPALTSR		40626
HPV16	L2	222	9	VARLGLYSR		40627
HPV16	L2	238	11	VDPAFITPTK		40628
HPV16	L2	210	11	VTSTPIGSR		40629
HPV16	L2	447	10	YLHPSYYMLR		40630
HPV16	L2	447	11	YLHPSYYMLRK		40631
HPV16	L2	453	8	YMLRKRKK		40632
HPV16	L2	453	9	YMLRKRKKR		40633
HPV16	L2	303	11	YSRIGNKQTLR		40634
HPV16	L2	228	9	YSRTTQVK		40635
HPV16	L2	437	11	YTHIADAGDFY		40636
HPV18	E1	397	11	AAFLKSNQAK		40637
HPV18	E1	398	10	AFLKSNQAK		40638
HPV18	E1	398	11	AFLKSNQAKY		40639
HPV18	E1	546	11	ALDGNPISDR		40640
HPV18	E1	68	9	ALFHAQEVH		40641
HPV18	E1	466	11	ALKSFLKGTPK		40642
HPV18	E1	284	9	ALLRYKCGK	0.1400	40643
HPV18	E1	284	11	ALLRYKCGKSR		40644
HPV18	E1	213	10	AMLAVFKDTY		40645
HPV18	E1	413	8	ATMCKHYR		40646
HPV18	E1	413	9	ATMCKHYRR	0.2800	40647
HPV18	E1	531	8	ATTTCWTY		40648
HPV18	E1	504	11	AVISFVNSTSH		40649
HPV18	E1	412	8	CATMCKHY	0.0110	40650
HPV18	E1	412	9	CATMCKHYR		40651
HPV18	E1	412	10	CATMCKIYRR		40652
HPV18	E1	618	9	CFERTWSR		40653
HPV18	E1	290	10	CGKSRLTVAK		40654
HPV18	E1	483	8	CGPANTGK		40655
HPV18	E1	483	10	CGPANTGKSY		40656
HPV18	E1	311	8	CMLIQPPK		40657
HPV18	E1	311	10	CMLIQPPKLR		40658
HPV18	E1	437	11	CSKIDEGGDWR		40659
HPV18	E1	196	11	CTIAQLKDLLK		40660
HPV18	E1	78	9	DAQVLIIVLK		40661
HPV18	E1	78	10	DAQVLIIVLKR		40662

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E1	78	11	DAQVLIVLKRK		40663
HPV18	E1	530	9	DATTCWY		40664
HPV18	E1	411	8	DCATMCKH		40665
HPV18	E1	411	9	DCATMCKHY		40666
HPV18	E1	411	10	DCATMCKHYR		40667
HPV18	E1	411	11	DCATMCKHYRR		40668
HPV18	E1	529	10	DDATTCWY		40669
HPV18	E1	548	9	DGNPISDR		40670
HPV18	E1	548	10	DGNPISDRK		40671
HPV18	E1	548	11	DGNPISDRKH		40672
HPV18	E1	203	8	DLKVNK		40673
HPV18	E1	228	10	DLVRNFKSDK		40674
HPV18	E1	580	10	DNRWPYLESR		40675
HPV18	E1	391	11	DSNSAAAFK		40676
HPV18	E1	637	11	DTEGNPFGTEK		40677
HPV18	E1	342	8	DTEWQIR		40678
HPV18	E1	459	10	EFITFLGALK		40679
HPV18	E1	594	10	EFNAPFDK		40680
HPV18	E1	639	9	EGNPFGTK		40681
HPV18	E1	639	11	EGNPFGTKLR		40682
HPV18	E1	10	10	EGTGCNGWFY	0.0002	40683
HPV18	E1	610	8	EINDKNWK		40684
HPV18	E1	115	9	EISLNSGOK		40685
HPV18	E1	115	10	EISLNSGQKK		40686
HPV18	E1	62	10	ELETAQALFH		40687
HPV18	E1	95	8	ENSPLGR		40688
HPV18	E1	379	8	ESDMAFEY		40689
HPV18	E1	64	8	ETAQALFH		40690
HPV18	E1	309	10	ETCMLIQPPK		40691
HPV18	E1	104	9	EVDTELSR		40692
HPV18	E1	74	10	EVINDAQVLH		40693
HPV18	E1	482	9	FCGPANTGK		40694
HPV18	E1	482	11	FCGPANTGKSY		40695
HPV18	E1	601	9	FDKNGNPVY		40696
HPV18	E1	619	8	FFERTWSR		40697
HPV18	E1	460	9	FITFLGALK	0.0370	40698
HPV18	E1	463	10	FLGALKSFLK		40699
HPV18	E1	470	8	FLKGTPKK		40700
HPV18	E1	399	9	FLKSNQAK	0.0007	40701
HPV18	E1	399	10	FLKSNQAKY		40702
HPV18	E1	226	9	FTDLVRNFK		40703
HPV18	E1	130	8	FTSDSGY		40704
HPV18	E1	465	8	GALKSFLK		40705
HPV18	E1	212	8	GAMLAVFK		40706
HPV18	E1	212	11	GAMLAVFKDTY		40707
HPV18	E1	341	9	GDTPEWQIR	0.0002	40708

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E1	444	11	GDWRPIVQFLR		40709
HPV18	E1	223	9	GLSFTDLVR	0.0025	40710
HPV18	E1	640	8	GNPFGTFK		40711
HPV18	E1	640	10	GNPFGTFKLR		40712
HPV18	E1	549	8	GNPISIDR		40713
HPV18	E1	549	9	GNPISIDRK		40714
HPV18	E1	549	10	GNPISIDRKH		40715
HPV18	E1	549	11	GNPISIDRKHK		40716
HPV18	E1	605	10	GNPVEINDK		40717
HPV18	E1	92	11	GSTENSPGGER		40718
HPV18	E1	644	11	GTFKLRAQQNH	0.0720	40719
HPV18	E1	11	9	GTGCGWFY	0.1400	40720
HPV18	E1	279	9	GVLILALLR		40721
HPV18	E1	279	10	GVLILALLRY		40722
HPV18	E1	279	11	GVLILALLRYK		40723
HPV18	E1	249	11	GVNPTIAEGFK		40724
HPV18	E1	514	11	HFWELEPLTDTK		40725
HPV18	E1	270	8	HIQCLDCK		40726
HPV18	E1	76	8	HNDAAQVLH		40727
HPV18	E1	76	11	HNDAAQVLHVLK		40728
HPV18	E1	198	9	IAQLKDLLK	0.0027	40729
HPV18	E1	440	8	IDEGDWR		40730
HPV18	E1	282	8	ILALLRYK		40731
HPV18	E1	282	11	ILALLRYKCGK		40732
HPV18	E1	569	8	ILLTTNIH		40733
HPV18	E1	569	11	ILLTTNIHPAK		40734
HPV18	E1	506	9	ISFVNSTSH		40735
HPV18	E1	552	8	ISIDRKHK		40736
HPV18	E1	116	8	ISLNSGQK		40737
HPV18	E1	116	9	ISLNSGQKK	0.0026	40738
HPV18	E1	116	11	ISLNSGQKKAK		40739
HPV18	E1	461	8	ITFLGALK		40740
HPV18	E1	617	10	KCFERTWSR		40741
HPV18	E1	289	11	KCGKSRLTVAK		40742
HPV18	E1	410	8	KDCATMCK		40743
HPV18	E1	410	9	KDCATMCKH		40744
HPV18	E1	410	10	KDCATMCKHY		40745
HPV18	E1	410	11	KDCATMCKHYR		40746
HPV18	E1	202	9	KDLKVNKK		40747
HPV18	E1	579	11	KDNRWPYLESR		40748
HPV18	E1	299	8	KGLSTLLH		40749
HPV18	E1	439	9	KIDEGGDWR		40750
HPV18	E1	647	8	KLRAGQNH		40751
HPV18	E1	647	9	KLRAGQNHHR	0.0013	40752
HPV18	E1	318	10	KLRSSVAALY		40753
HPV18	E1	614	9	KNWKCFER		40754

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E1	468	9	KSFLKGTPK	0.0015	40755
HPV18	E1	468	10	KSFLKGTPKK		40756
HPV18	E1	401	8	KSNCQAKY		40757
HPV18	E1	401	10	KSNCQAKYLK		40758
HPV18	E1	292	8	KSRLTVAK		40759
HPV18	E1	490	10	KSYFGMSFIH		40760
HPV18	E1	259	10	KTLPQFIFY		40761
HPV18	E1	283	10	LALLRYKCGK		40762
HPV18	E1	215	8	LAVFKDTY		40763
HPV18	E1	528	11	LDDATTCWTY		40764
HPV18	E1	547	10	LDGNPISIDR	0.1800	40765
HPV18	E1	547	11	LDGNPISIDRK		40766
HPV18	E1	69	8	LFHIAQEVH		40767
HPV18	E1	129	9	LFTISDSGY		40768
HPV18	E1	464	9	LGALKSEFK		40769
HPV18	E1	281	8	LILALLRY		40770
HPV18	E1	281	9	LILALLRYK		40771
HPV18	E1	261	8	LIQPFIFY		40772
HPV18	E1	261	10	LIQPFIFYAH		40773
HPV18	E1	313	8	LIQPKLR		40774
HPV18	E1	285	8	LLRYKCGK	40775	
HPV18	E1	285	10	LLRYKCGKSR	40776	
HPV18	E1	570	10	LLTNIHPAK	40777	
HPV18	E1	118	9	LNSGQKKAK	40778	
HPV18	E1	118	10	LNSGQKKAKR	40779	
HPV18	E1	118	11	LNSGQKKAKRR	40780	
HPV18	E1	224	8	LSFTDLVR	40781	
HPV18	E1	224	11	LSFTDLVRNFK	40782	
HPV18	E1	376	11	LTDESMAFEY	40783	
HPV18	E1	571	9	LTNIHPAK	40784	
HPV18	E1	480	11	LVFCGPANTGK	40785	
HPV18	E1	229	9	LVRNFKSDK	40786	
HPV18	E1	415	10	MCKHYRRAQK	40787	
HPV18	E1	415	11	MCKIYRRAQKR	40788	
HPV18	E1	340	10	MGDTPEWIQR	40789	
HPV18	E1	214	9	MLAVFKDTY	40790	
HPV18	E1	312	9	MLIQPPKLR	40791	
HPV18	E1	427	8	MNMSQWIR	40792	
HPV18	E1	427	10	MNMSQWIRFR	40793	
HPV18	E1	429	8	MSQWIRFR	40794	
HPV18	E1	429	11	MSQWIRFRCSK	40795	
HPV18	E1	403	8	NCQAKYLK	40796	
HPV18	E1	77	10	NDAQVLHVLK	40797	
HPV18	E1	77	11	NDAQVLHVLKR	40798	
HPV18	E1	612	11	NDKNWKCFER	40799	
HPV18	E1	604	11	NGNPVYEINDK	40800	

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E1	574	9	NIHPAKDNR	0.0002	40801
HPV18	E1	428	9	NMSQWIRFR	0.0012	40802
HPV18	E1	119	8	NSGQKKAK		40803
HPV18	E1	119	9	NSGQKKAKR	0.0002	40804
HPV18	E1	119	10	NSGQKKAKRR		40805
HPV18	E1	393	9	NSNAAAFLL	0.3700	40806
HPV18	E1	577	9	PAKDNRPY		40807
HPV18	E1	485	8	PANTGKSY		40808
HPV18	E1	600	10	PEDKNGNPVY		40809
HPV18	E1	642	8	PFGTFKLK		40810
HPV18	E1	568	9	PILLTTNIH		40811
HPV18	E1	551	8	PISIDRKH		40812
HPV18	E1	551	9	PISIDRKHK		40813
HPV18	E1	448	8	PIVQFLRY		40814
HPV18	E1	596	8	PNAPFDK		40815
HPV18	E1	252	8	PTIAEGFK		40816
HPV18	E1	607	8	PVYEINDK		40817
HPV18	E1	607	11	PVYEINDKNWK		40818
HPV18	E1	67	10	QALFIAQEVH		40819
HPV18	E1	195	8	QCTIAQLK		40820
HPV18	E1	211	9	QGAMLAFFK		40821
HPV18	E1	146	10	QIQVTNGEH		40822
HPV18	E1	200	11	QLKDLLKVNNK		40823
HPV18	E1	426	9	QMNMNQWIR	0.0023	40824
HPV18	E1	426	11	QMNMNQWIRFR		40825
HPV18	E1	80	8	QVLHVLKR	0.0020	40826
HPV18	E1	80	9	QVLHVLKRK		40827
HPV18	E1	148	8	QVTTNGEH		40828
HPV18	E1	102	11	RLEVDTELSPR		40829
HPV18	E1	128	10	RLFTISDSGY		40830
HPV18	E1	320	8	RSSVAALY		40831
HPV18	E1	320	10	RSSVAALYWY		40832
HPV18	E1	320	11	RSSVAALYWYR		40833
HPV18	E1	622	9	RTWSRLDLH		40834
HPV18	E1	469	8	SFLKGTPK		40835
HPV18	E1	469	9	SFLKGTPKK		40836
HPV18	E1	225	10	SFTDLVRNFK		40837
HPV18	E1	507	8	SFVNSTSH		40838
HPV18	E1	120	8	SGQKKAKR		40839
HPV18	E1	120	9	SGQKKAKRR		40840
HPV18	E1	117	8	SLNSGQKK		40841
HPV18	E1	117	10	SLNSGQKKAK		40842
HPV18	E1	117	11	SLNSGQKKAKR		40843
HPV18	E1	394	8	SNAAAFLL		40844
HPV18	E1	402	9	SNCQAKYLK		40845
HPV18	E1	392	10	SNSNAAAFLL		40846

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E1	321	9	SSVAALYWY		40847
HPV18	E1	321	10	SSVAALYWYR		40848
HPV18	E1	93	10	STENSPLGER		40849
HPV18	E1	322	8	SVAALYWY		40850
HPV18	E1	322	9	SVAALYWYR		40851
HPV18	E1	310	9	TCMLIQPPK	8.8000	40852
HPV18	E1	310	11	TCMLIQPPKLR		40853
HPV18	E1	534	9	TCWTFDITY		40854
HPV18	E1	534	11	TCWTFDITYMR		40855
HPV18	E1	377	10	TDESDMAFEY		40856
HPV18	E1	227	8	TDLVRNEK		40857
HPV18	E1	227	11	TDLVRNEKSDK		40858
HPV18	E1	645	10	TFKLRAQNH		40859
HPV18	E1	645	11	TFKLRAQNHNR		40860
HPV18	E1	462	11	TFLGALKSFLK		40861
HPV18	E1	12	8	TGCNGWFY		40862
HPV18	E1	197	10	TIAQLKDLLK		40863
HPV18	E1	260	9	TLIQPFILY		40864
HPV18	E1	260	11	TLIQPFILYAH		40865
HPV18	E1	414	8	TMCKHYRR		40866
HPV18	E1	414	11	TMCKHYRRAQK		40867
HPV18	E1	573	10	TNIHPAKDNR		40868
HPV18	E1	533	10	TTCWTFDITY		40869
HPV18	E1	572	8	TTNIHPAK		40870
HPV18	E1	572	11	TTNIHPAKDNR		40871
HPV18	E1	532	11	TTTCWTFDITY		40872
HPV18	E1	296	11	TVAKGLSTLLH		40873
HPV18	E1	323	8	VAALYWYR		40874
HPV18	E1	297	10	VAKGLSTLLH		40875
HPV18	E1	105	8	VDTELSR		40876
HPV18	E1	481	10	VFCGPANTGK		40877
HPV18	E1	505	10	VISFVNSTSH		40878
HPV18	E1	81	8	VLHVLKRK		40879
HPV18	E1	280	8	VLILALLR		40880
HPV18	E1	280	9	VLILALLRY		40881
HPV18	E1	280	10	VLILALLRYK		40882
HPV18	E1	339	11	VMGDTPEWIQR		40883
HPV18	E1	192	11	VNPQCTIAQLK		40884
HPV18	E1	250	10	VNPTIAEGFK		40885
HPV18	E1	17	10	WFYVQAIVDK		40886
HPV18	E1	17	11	WFYVQAIVDKK		40887
HPV18	E1	278	10	WGVILALLR		40888
HPV18	E1	278	11	WGVILALLRY		40889
HPV18	E1	346	10	WQRLTIQIH		40890
HPV18	E1	432	8	WIRFRCSK		40891
HPV18	E1	516	9	WLEPLTDTK		40892

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E1	536	9	WTFYDTYMR		40893
HPV18	E1	268	10	YAHIQCLDCK		40894
HPV18	E1	492	8	YFGMSFIH		40895
HPV18	E1	222	10	YGLSFTDLVR		40896
HPV18	E1	408	10	YLKDCATMCK		40897
HPV18	E1	408	11	YLKDCATMCKH		40898
HPV18	E1	19	8	YVQAIVDK		40899
HPV18	E1	19	9	YVQAIVDKK		40900
HPV18	E1	19	9	AATPTGNNK	0.0120	40901
HPV18	E2	269	9	AATPTGNNK		40902
HPV18	E2	269	10	AATPTGNNKR		40903
HPV18	E2	269	11	AATPTGNNKRR		40904
HPV18	E2	45	9	AIFFAAREH		40905
HPV18	E2	82	9	ALQGLAQR		40906
HPV18	E2	82	10	ALQGLAQR		40907
HPV18	E2	82	10	ALQGLAQR		40908
HPV18	E2	154	11	ALQGLAQR		40909
HPV18	E2	154	11	ATCVSHIRGLY		40910
HPV18	E2	270	8	ATPTGNNK		40911
HPV18	E2	270	9	ATPTGNNKR		40912
HPV18	E2	270	10	ATPTGNNKRR		40913
HPV18	E2	270	11	ATPTGNNKRRK		40914
HPV18	E2	214	10	ATQLVKQLQH		40915
HPV18	E2	252	8	CGLAEKQH		40916
HPV18	E2	301	8	CLRYRLRK		40917
HPV18	E2	301	9	CLRYRLRKII		40918
HPV18	E2	132	11	CMTYVAWDSVY		40919
HPV18	E2	282	10	CSGNTTPIH		40920
HPV18	E2	14	9	CVQDKIDH		40921
HPV18	E2	14	10	CVQDKIDHY		40922
HPV18	E2	156	8	CVSHIRGLY		40923
HPV18	E2	156	9	CVSHIRGLY		40924
HPV18	E2	156	11	CVSHIRGLYVK		40925
HPV18	E2	209	11	DDTVSATQLVK		40926
HPV18	E2	126	10	DGNKDNMTY		40927
HPV18	E2	29	8	DIDSQIQY		40928
HPV18	E2	26	11	DSKIDSQIQY		40929
HPV18	E2	31	11	DSQIQYWQLIR		40930
HPV18	E2	354	9	DSVQLVGY		40931
HPV18	E2	210	10	DTVSATQLVK		40932
HPV18	E2	175	8	EFKSECEK		40933
HPV18	E2	175	9	EFKSECEKY		40934
HPV18	E2	167	11	EGYNTFYIEFK		40935
HPV18	E2	104	9	ELWNTPEPH		40936
HPV18	E2	43	9	ENAIFFAAR		40937
HPV18	E2	43	11	ENAIFFAAREH		40938
HPV18	E2	125	11	FDGNKDNMTY		40938

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E2	268	10	GAATPTGNNK		40939
HPV18	E2	268	11	GAATPTGNNKR		40940
HPV18	E2	294	10	GDRNSLKCLR		40941
HPV18	E2	294	11	GDRNSLKCLRY		40942
HPV18	E2	117	8	GGQTVQVY		40943
HPV18	E2	331	8	GILTVYH		40944
HPV18	E2	85	8	GLAQSYRK		40945
HPV18	E2	161	9	GLYYVKEGY		40946
HPV18	E2	127	9	GNKDNCMTY		40947
HPV18	E2	184	9	GNTGTWEVH		40948
HPV18	E2	284	8	GNTTPIIH		40949
HPV18	E2	284	10	GNTTPIHLK		40950
HPV18	E2	251	9	HCGLAEKQH		40951
HPV18	E2	53	8	HGIQTLNH		40952
HPV18	E2	291	10	HLKGDRLSLK		40953
HPV18	E2	338	8	HSETQRTK		40954
HPV18	E2	20	9	IDHYENDSK		40955
HPV18	E2	46	8	IFFAAREH		40956
HPV18	E2	19	10	IDHYENDSK		40957
HPV18	E2	289	8	IHLKGDR		40958
HPV18	E2	68	8	ISKSAHK		40959
HPV18	E2	300	8	KCLRYRLR		40960
HPV18	E2	300	9	KCLRYRLRK		40961
HPV18	E2	300	10	KCLRYRLRKH		40962
HPV18	E2	28	9	KDIDSQIQY		40963
HPV18	E2	293	8	KGDRNSLK		40964
HPV18	E2	293	11	KGDRNSLKCLR		40965
HPV18	E2	116	9	KGQTVQVY		40966
HPV18	E2	18	11	KIDHYENDSK		40967
HPV18	E2	152	8	KTATCVSH		40968
HPV18	E2	152	9	KTATCVSHR		40969
HPV18	E2	329	9	KTGILTVTY		40970
HPV18	E2	329	10	KTGILTVTYII		40971
HPV18	E2	238	11	KTYGQTSAAIR		40972
HPV18	E2	281	11	LCSGNTPIIH		40973
HPV18	E2	267	11	LGAATPTGNNK		40974
HPV18	E2	58	9	LNIQVVPAY		40975
HPV18	E2	12	11	LSCVQDKIIDH		40976
HPV18	E2	8	11	LSERLSCVQDK		40977
HPV18	E2	333	11	LTVYHSETQR		40978
HPV18	E2	81	10	MALQGLAQR		40979
HPV18	E2	81	11	MALQGLAQR		40980
HPV18	E2	144	9	MTDAGTWDK		40981
HPV18	E2	133	10	MTYVAWDSVY		40982
HPV18	E2	133	11	MTYVAWDSVYY		40983
HPV18	E2	44	8	NAIFFAAR		40984

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E2	44	10	NAIFFAAREHI		40985
HPV18	E2	67	8	NISKSAH		40986
HPV18	E2	67	9	NISKSAHK		40987
HPV18	E2	297	8	NSLKCLRY		40988
HPV18	E2	297	9	NSLKCLRYR		40989
HPV18	E2	297	11	NSLKCLRYRLR		40990
HPV18	E2	107	9	NTEPTICFK		40991
HPV18	E2	107	10	NTEPTICFKK		40992
HPV18	E2	170	8	NTFYIEFK		40993
HPV18	E2	185	8	NTGTWEVH		40994
HPV18	E2	285	9	NTTPHLK		40995
HPV18	E2	64	9	PAYNISKS		40996
HPV18	E2	64	11	PAYNISKSAH		40997
HPV18	E2	353	10	PDSVQILVGY		40998
HPV18	E2	249	9	PGHCGLAEK		40999
HPV18	E2	249	11	PGHCGLAEKQH		41000
HPV18	E2	288	9	PIHLKGDR		41001
HPV18	E2	272	8	PTGNNKRR		41002
HPV18	E2	272	9	PTGNNKRRK		41003
HPV18	E2	16	8	QDKIIDHY		41004
HPV18	E2	84	8	QGLAQSR		41005
HPV18	E2	84	9	QGLAQSRK		41006
HPV18	E2	33	9	QIYWQLIR		41007
HPV18	E2	220	9	QLQHTSPY		41008
HPV18	E2	216	8	QLVKQLQH		41009
HPV18	E2	80	11	QMALQGLAQSR		41010
HPV18	E2	56	11	QTLNIQVVPAY		41011
HPV18	E2	2	10	QTPKETLSER		41012
HPV18	E2	242	10	QTSAAATPGH		41013
HPV18	E2	119	11	QTVQVYFDGK		41014
HPV18	E2	61	10	QVVPAYNISK		41015
HPV18	E2	122	8	QVYFDGK		41016
HPV18	E2	314	8	RDISSTWH		41017
HPV18	E2	160	10	RGLYYVKEGY		41018
HPV18	E2	305	8	RLRKHSDDH		41019
HPV18	E2	305	9	RLRKHSDDHY		41020
HPV18	E2	305	10	RLRKHSDDHYR		41021
HPV18	E2	11	8	RLSCVQDK		41022
HPV18	E2	296	8	RNSLKCLR		41023
HPV18	E2	296	9	RNSLKCLRY		41024
HPV18	E2	296	10	RNSLKCLRYR		41025
HPV18	E2	244	8	SAATRPGH		41026
HPV18	E2	213	11	SATQLVKQLQH		41027
HPV18	E2	13	10	SCVQDKIIDH		41028
HPV18	E2	13	11	SCVQDKIIDHY		41029
HPV18	E2	283	9	SGNTTPIIH		41030

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E2	283	11	SGNTTPIHLK		41031
HPV18	E2	298	8	SLKCLRYR		41032
HPV18	E2	298	10	SLKCLRYRLR		41033
HPV18	E2	298	11	SLKCLRYRLRK		41034
HPV18	E2	229	10	SSTVSVGTAK		41035
HPV18	E2	230	9	STVSVGTAK		41036
HPV18	E2	230	11	STVSVGTAKTY		41037
HPV18	E2	233	8	SVGTAKTY		41038
HPV18	E2	355	8	SVQILVGY		41039
HPV18	E2	153	8	TATCVSHR		41040
HPV18	E2	153	11	TATCVSHRGLY		41041
HPV18	E2	155	9	TCVSHRGLY		41042
HPV18	E2	155	10	TCVSHRGLYY		41043
HPV18	E2	145	8	TDAGTWDK		41044
HPV18	E2	330	8	TGILTVTY		41045
HPV18	E2	330	9	TGILTVTYH		41046
HPV18	E2	273	8	TGNNKRRK		41047
HPV18	E2	57	10	TLNHQVVPAY		41048
HPV18	E2	243	9	TSAATRPQH		41049
HPV18	E2	286	8	TTPIHLK		41050
HPV18	E2	286	11	TTPIHLKGDGR		41051
HPV18	E2	120	10	TVQVYFDGNK		41052
HPV18	E2	211	9	TVSATQLVK		41053
HPV18	E2	231	8	TVSVGTAK		41054
HPV18	E2	231	10	TVSVGTAKTY		41055
HPV18	E2	334	10	VTYISETQR		41056
HPV18	E2	136	8	VAWDSVYY		41057
HPV18	E2	212	8	VSATQLVK		41058
HPV18	E2	157	8	VSHRGLYY		41059
HPV18	E2	157	10	VSHRGLYYVK		41060
HPV18	E2	232	9	VSVGTAKTY		41061
HPV18	E2	335	9	VTYISETQR		41062
HPV18	E2	335	11	VTYISETQRTK		41063
HPV18	E2	62	9	VVPAYNISK		41064
HPV18	E2	62	11	VVPAYNISKSK		41065
HPV18	E2	150	10	WDKTATCVSH		41066
HPV18	E2	150	11	WDKTATCVSHR		41067
HPV18	E2	106	10	WNTEPTHCFK		41068
HPV18	E2	106	11	WNTEPTHCFKK		41069
HPV18	E2	322	8	WTGAGNEK		41070
HPV18	E2	183	10	YGNTGTWEVHI		41071
HPV18	E2	240	9	YQQTSAATR		41072
HPV18	E2	173	10	YIEFKSECEK		41073
HPV18	E2	173	11	YIEFKSECEKY		41074
HPV18	E2	143	10	YMTDAGTWDK		41075
HPV18	E2	66	9	YNISKSAH		41076

Table XVII
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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E2	66	10	YNISKSAHK		41077
HPV18	E2	169	9	YNTFYIEFK		41078
HPV18	E2	228	11	YSSTVSVGTA		41079
HPV18	E2	135	8	YVAWDSVY		41080
HPV18	E2	135	9	YVAWDSVY		41081
HPV18	E2	164	10	YVKEGYNTFY		41082
HPV18	E5	29	11	CAYAWVLVFFV		41083
HPV18	E5	9	11	CFCVCMYVCC		41084
HPV18	E5	56	10	CFLPMLLLH		41085
HPV18	E5	11	9	CVCMYVCC		41086
HPV18	E5	8	8	FCFCVCMY		41087
HPV18	E5	55	11	FCFLPMLLLH		41088
HPV18	E5	10	10	FCVCMYVCC		41089
HPV18	E5	6	10	FLFCFCVCMY		41090
HPV18	E5	57	9	FLLPMLLLH		41091
HPV18	E5	57	11	FLLPMLLLHH		41092
HPV18	E5	5	11	IFLFCFCVCMY		41093
HPV18	E5	43	11	ITSPATAFTVY		41094
HPV18	E5	7	9	LFCFCVCMY		41095
HPV18	E5	58	8	LLPMLLLH		41096
HPV18	E5	58	10	LLPMLLLHH		41097
HPV18	E5	22	10	LLPSVCMCAY		41098
HPV18	E5	46	8	PATAFTVY		41099
HPV18	E5	21	11	PLLPVCMCAY		41100
HPV18	E5	60	8	PMLLLHH		41101
HPV18	E5	24	8	PSVCMCAY		41102
HPV18	E5	44	10	TSPATAFTVY		41103
HPV18	E5	12	8	VCMYVCC		41104
HPV18	E5	31	9	YAWVLVFFV		41105
HPV18	E6	63	10	AACHKCIDFY		41106
HPV18	E6	64	9	ACHKCIDFY		41107
HPV18	E6	64	11	ACIKCIDFYSR		41108
HPV18	E6	48	9	AFKDLFVVY		41109
HPV18	E6	48	10	AFKDLFVVYR		41110
HPV18	E6	131	9	AGHYRGQCH	0.0002	41111
HPV18	E6	141	9	CCNRARQER		41112
HPV18	E6	68	9	CIDFYSRIR	0.0001	41113
HPV18	E6	142	8	CNRARQER		41114
HPV18	E6	142	11	CNRARQERLQR		41115
HPV18	E6	70	10	DFYSRIRELR	0.0001	41116
HPV18	E6	70	11	DFYSRIRELRH		41117
HPV18	E6	27	8	DIETCVY		41118
HPV18	E6	27	10	DIETCVYCK	0.0021	41119
HPV18	E6	58	9	DSPIAACH	0.0002	41120
HPV18	E6	58	10	DSPIAACHIK		41121
HPV18	E6	83	10	DSVYGDITLEK	0.0051	41122

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E6	5	8	EDPTRRPY		41123
HPV18	E6	5	9	EDPTRRPYK		41124
HPV18	E6	46	11	EFKDLFVVY		41125
HPV18	E6	29	8	EITCVYCK		41126
HPV18	E6	77	10	ELRHYSDSVY	0.0002	41127
HPV18	E6	40	11	ELTEVEFAFK		41128
HPV18	E6	43	8	EVFEFAFK	0.0180	41129
HPV18	E6	47	10	FAFKDLFVVY		41130
HPV18	E6	47	11	FAFKDLFVVYR		41131
HPV18	E6	53	10	FVVYRDSIPH		41132
HPV18	E6	97	8	GLYNLLIR		41133
HPV18	E6	97	11	GLYNLLIRCLR		41134
HPV18	E6	62	11	HAACHKCIDFY		41135
HPV18	E6	120	9	HLNEKRREH		41136
HPV18	E6	128	8	INIAGHYR		41137
HPV18	E6	139	8	IISCCNRR		41138
HPV18	E6	139	11	HSCCNRRARQER		41139
HPV18	E6	130	10	IAGHYRGQCH		41140
HPV18	E6	69	8	IDFYSRIR		41141
HPV18	E6	69	11	IDFYSRIRELR		41142
HPV18	E6	67	8	KCIDFYSR		41143
HPV18	E6	67	10	KCIDFYSRIR		41144
HPV18	E6	50	8	KDLFVVYR		41145
HPV18	E6	117	8	KLRHLNEK		41146
HPV18	E6	117	9	KLRHLNEKR		41147
HPV18	E6	117	10	KLRHLNEKRR	0.0005	41148
HPV18	E6	92	8	KLNTGLY	0.0001	41149
HPV18	E6	52	11	LFVVYRDSIPH		41150
HPV18	E6	102	9	LIRCLRCQK	0.0012	41151
HPV18	E6	101	10	LLIRCLRCQK	0.1200	41152
HPV18	E6	121	8	LNEKRRFH		41153
HPV18	E6	112	8	LNPAEKL		41154
HPV18	E6	112	9	LNPAEKLRI		41155
HPV18	E6	41	10	LTEVFEFAFK	0.0360	41156
HPV18	E6	1	9	MARFEDPTR		41157
HPV18	E6	1	10	MARFEDPTRR		41158
HPV18	E6	129	11	NIAGHYRGQCH		41159
HPV18	E6	100	8	NLLIRCLR		41160
HPV18	E6	100	11	NLLIRCLRCQK	0.0013	41161
HPV18	E6	95	10	NTGLYNLLIR		41162
HPV18	E6	114	11	PAEKLRIILNEK		41163
HPV18	E6	111	9	PLNPAEKL	0.0005	41164
HPV18	E6	111	10	PLNPAEKLRIH		41165
HPV18	E6	137	8	QCHSCCNRR		41166
HPV18	E6	137	10	QCHSCCNRRAR		41167
HPV18	E6	26	9	QDIEITCVY		41168

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E6	26	11	QDIEITCVYCK		41169
HPV18	E6	144	9	RARQERLQR	0.0002	41170
HPV18	E6	144	10	RARQERLQRR		41171
HPV18	E6	144	11	RARQERLQRRR		41172
HPV18	E6	107	11	RCQKPLNPAEK		41173
HPV18	E6	57	10	RDSIPHAACH		41174
HPV18	E6	57	11	RDSIPHAACHK		41175
HPV18	E6	3	8	RFEDPTRR		41176
HPV18	E6	3	10	RFEDPTRRPY	0.0002	41177
HPV18	E6	3	11	RFEDPTRRPYK		41178
HPV18	E6	126	8	RFHNIAGH		41179
HPV18	E6	126	9	RFHNIAGHY	0.0002	41180
HPV18	E6	126	10	RFHNIAGHYR	0.0057	41181
HPV18	E6	135	10	RGOCHSCNR		41182
HPV18	E6	74	8	RIRELHY		41183
HPV18	E6	140	10	SCCNRARQER		41184
HPV18	E6	82	11	SDSVYGDITLEK		41185
HPV18	E6	59	8	SIPHAACH		41186
HPV18	E6	59	9	SIPHAACHK	0.1200	41187
HPV18	E6	24	11	SLQDIEITCVY		41188
HPV18	E6	84	9	SVYGDITLEK	0.2300	41189
HPV18	E6	96	9	TGLYNLLIR	0.0002	41190
HPV18	E6	89	11	TLEKLTNTGLY	0.0002	41191
HPV18	E6	94	11	TNTGLYNLLIR		41192
HPV18	E6	54	9	VVYRDSIPH	0.3800	41193
HPV18	E6	99	9	YNLLIRCLR		41194
HPV18	E6	72	8	YSRIRELR		41195
HPV18	E6	72	9	YSRIRELRH		41196
HPV18	E6	72	10	YSRIRELRHY	0.0001	41197
HPV18	E7	6	9	ATLQDIVLH		41198
HPV18	E7	65	9	CCKCEARIK		41199
HPV18	E7	63	9	CMCKCKEAR		41200
HPV18	E7	63	11	CMCKCKEARIK	0.0002	41201
HPV18	E7	42	11	DGVNIHQHLPAR		41202
HPV18	E7	40	9	EIDGVNIQH		41203
HPV18	E7	20	9	EIPVDLLCH		41204
HPV18	E7	37	10	ENDEIDGVNHI		41205
HPV18	E7	77	8	ESSADDLR		41206
HPV18	E7	43	10	GVNHQHLPAR		41207
HPV18	E7	43	11	GVNHQHLPARR		41208
HPV18	E7	48	11	HLPARRAEPQR		41209
HPV18	E7	59	9	HTMLCMCK	0.0940	41210
HPV18	E7	41	8	IDGVNHHQ		41211
HPV18	E7	5	10	KATLQDIVLHI		41212
HPV18	E7	62	10	LCMCKCKEAR		41213
HPV18	E7	74	11	LVVSSADDLR		41214

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	E7	64	8	MCKCEAR		41215
HPV18	E7	64	10	MCKCEARIK		41216
HPV18	E7	61	11	MLCMCKGEAR		41217
HPV18	E7	38	9	NDEIDGVNH		41218
HPV18	E7	38	11	NDEIDGVNHQH		41219
HPV18	E7	50	9	PARRAEPQR		41220
HPV18	E7	50	10	PARRAEPQRH		41221
HPV18	E7	18	11	QNEIPVDLLCH		41222
HPV18	E7	7	8	TLQDIVLH		41223
HPV18	E7	60	8	TMLCMCK	0.0240	41224
HPV18	E7	44	9	VNHQILPAR	0.0007	41225
HPV18	E7	44	10	VNHQILPARR		41226
HPV18	E7	75	10	VVSSADDLR		41227
HPV18	E7	494	10	AAPAEKDPY		41228
HPV18	L1	195	11	AATSNVSEDVR		41229
HPV18	L1	162	9	ACAGVEIGR		41230
HPV18	L1	447	8	ADVMSYIH		41231
HPV18	L1	115	11	AGGKQDIPK		41232
HPV18	L1	225	8	AIEHIWAK		41233
HPV18	L1	63	11	ALWRPSDNTVY		41234
HPV18	L1	268	11	AMDFSTLQDTK		41235
HPV18	L1	345	8	ASPGSCVY		41236
HPV18	L1	407	11	ASTQSPVPGQY		41237
HPV18	L1	419	9	ATKFKQYSR		41238
HPV18	L1	419	10	ATKFKQYSRH		41239
HPV18	L1	196	10	ATSNVSEDVR		41240
HPV18	L1	552	9	ATTSSKPAK		41241
HPV18	L1	552	10	ATTSSKPAKR		41242
HPV18	L1	163	8	CAGVEIGR		41243
HPV18	L1	222	8	CAPAIGE		41244
HPV18	L1	222	11	CAPAIGEHWAK		41245
HPV18	L1	42	10	CGHYILFLR		41246
HPV18	L1	310	10	CLRREQLFAR		41247
HPV18	L1	310	11	CLRREQLFARH		41248
HPV18	L1	2	10	CLYTRVLILH		41249
HPV18	L1	2	11	CLYTRVLILY		41250
HPV18	L1	493	8	DAAPAEK		41251
HPV18	L1	493	11	DAAPAEKDPY		41252
HPV18	L1	418	8	DATFKQY		41253
HPV18	L1	418	10	DATFKQYSR		41254
HPV18	L1	418	11	DATFKQYSRH		41255
HPV18	L1	245	8	DCPLELK		41256
HPV18	L1	86	11	DDYVTPTSIFY		41257
HPV18	L1	270	9	DFSTLQDTK		41258
HPV18	L1	258	9	DGDMVDTGY		41259
HPV18	L1	284	8	DICQSICK		41260

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	L1	284	9	DICQSICKY		41261
HPV18	L1	122	8	DIPKVSAY		41262
HPV18	L1	122	10	DIPKVSAYQY		41263
HPV18	L1	122	11	DIPKVSAYQYR		41264
HPV18	L1	520	9	DLDDQYPLGR		41265
HPV18	L1	520	10	DLDDQYPLGRK		41266
HPV18	L1	206	8	DNVSVDYK		41267
HPV18	L1	305	8	DSMFFCLR		41268
HPV18	L1	305	9	DSMFFCLR		41269
HPV18	L1	364	9	DSQLFNKPY		41270
HPV18	L1	148	11	DTSIYNPETQR		41271
HPV18	L1	330	8	DTVPQSLY		41272
HPV18	L1	330	10	DTVPQSLYIK		41273
HPV18	L1	203	10	DVRDNVSVDY		41274
HPV18	L1	203	11	DVRDNVSVDYK		41275
HPV18	L1	257	10	EDGDMVDTGY		41276
HPV18	L1	202	11	EDVRDNVSVDY		41277
HPV18	L1	498	8	ENKDPYDK		41278
HPV18	L1	498	10	ENKDPYDKLK		41279
HPV18	L1	317	8	FARHFWNR		41280
HPV18	L1	309	11	FCLRREQLFAR		41281
HPV18	L1	144	9	FGLPDTSY		41282
HPV18	L1	59	8	FLOMALWR		41283
HPV18	L1	530	8	FLVQAGLR		41284
HPV18	L1	530	9	FLVQAGLRR		41285
HPV18	L1	530	10	FLVQAGLRRK		41286
HPV18	L1	368	8	FNKPYWLH		41287
HPV18	L1	368	9	FNKPYWLHK		41288
HPV18	L1	517	8	FSLDLQY		41289
HPV18	L1	271	8	FSTLQDTK		41290
HPV18	L1	482	11	FVQSVAITCQK		41291
HPV18	L1	221	9	GCAPAIGE		41292
HPV18	L1	244	9	GDCPPELK		41293
HPV18	L1	259	8	GDMVDTGY		41294
HPV18	L1	304	9	GDSMFFCLR		41295
HPV18	L1	304	10	GDSMFFCLR		41296
HPV18	L1	329	9	GDTVPSLY		41297
HPV18	L1	329	11	GDTVPSLYIK		41298
HPV18	L1	116	10	GGNKQDIPK		41299
HPV18	L1	117	9	GGNKQDIPK		41300
HPV18	L1	145	8	GLPDTSY		41301
HPV18	L1	535	11	GLRKPITGPR		41302
HPV18	L1	177	8	GLSGHPFY		41303
HPV18	L1	177	10	GLSGHPFYNK		41304
HPV18	L1	342	11	GMPASFGSCVY		41305
HPV18	L1	118	8	GNKQDIPK		41306

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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV18	L1	175	10	GVGLSGHPFY	41307
HPV18	L1	38	8	HHICGHY	41308
HPV18	L1	13	10	HLPLYGPLY	41309
HPV18	L1	13	11	HLPLYGPLYH	41310
HPV18	L1	380	8	HNNGVCWH	41311
HPV18	L1	30	9	HSILVYMH	41312
HPV18	L1	41	11	ICGHYILFLR	41313
HPV18	L1	285	8	ICQSICKY	41314
HPV18	L1	285	11	ICQSICKYPDY	41315
HPV18	L1	58	9	IFLQMALWR	41316
HPV18	L1	94	9	IFYHAGSSR	41317
HPV18	L1	219	11	ILGCAPAIGE	41318
HPV18	L1	9	10	ILHYHLLPLY	41319
HPV18	L1	443	10	ITLTADVMSY	41320
HPV18	L1	360	11	IVTSDSQLFNK	41321
HPV18	L1	492	9	KDAAPAEK	41322
HPV18	L1	500	8	KDPYDKLK	41323
HPV18	L1	143	10	KFGLPDTSIY	41324
HPV18	L1	421	8	KFKQYSRH	41325
HPV18	L1	529	9	KFLVQAGLR	41326
HPV18	L1	529	10	KFLVQAGLRR	41327
HPV18	L1	529	11	KFLVQAGLRRK	41328
HPV18	L1	516	9	KFSLDLQY	41329
HPV18	L1	507	8	KFWNVDLK	41330
HPV18	L1	507	10	KFWNVDLKEK	41331
HPV18	L1	232	8	KGACKSR	41332
HPV18	L1	186	9	KLDDTESSH	41333
HPV18	L1	505	10	KLKFWNVDLK	41334
HPV18	L1	125	8	KVSAYQYR	41335
HPV18	L1	125	11	KVSAYQYRVFR	41336
HPV18	L1	187	8	LDDTESSH	41337
HPV18	L1	283	9	LDICQSICK	41338
HPV18	L1	283	10	LDICQSICKY	41339
HPV18	L1	519	10	LDLDQYPLGR	41340
HPV18	L1	519	11	LDLDQYPLGRK	41341
HPV18	L1	521	8	LDQYPLGR	41342
HPV18	L1	521	9	LDQYPLGRK	41343
HPV18	L1	316	9	LFARHFWNR	41344
HPV18	L1	367	9	LFNKPYWLII	41345
HPV18	L1	367	10	LFNKPYWLIIK	41346
HPV18	L1	220	10	LGCAPAIGE	41347
HPV18	L1	174	8	LGVGLSGH	41348
HPV18	L1	174	11	LGVGLSGHPFY	41349
HPV18	L1	8	11	LILHYHLLPLY	41350
HPV18	L1	14	9	LLPLYGPLY	41351
HPV18	L1	14	10	LLPLYGPLYH	41352

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	L1	103	8	LLTVGNPY		41353
HPV18	L1	103	10	LLTVGNPYFR		41354
HPV18	L1	178	9	LSGIIFYNK		41355
HPV18	L1	445	8	LTADVMSY		41356
HPV18	L1	445	10	LTADVMSYIH		41357
HPV18	L1	104	9	LTVGNPYFR		41358
HPV18	L1	531	8	LVQAGLRR		41359
HPV18	L1	531	9	LVQAGLRRK		41360
HPV18	L1	1	11	MCLYTRVLILH		41361
HPV18	L1	269	10	MDFTLQDTK		41362
HPV18	L1	328	10	MGDTVPQSLY		41363
HPV18	L1	36	9	MVHIICGH		41364
HPV18	L1	36	10	MVHIICGHY		41365
HPV18	L1	496	8	PAENKDPY		41366
HPV18	L1	496	10	PAENKDPYDK		41367
HPV18	L1	224	9	PAIGHWAK		41368
HPV18	L1	558	8	PAKRVRVR		41369
HPV18	L1	558	10	PAKRVRVRAR		41370
HPV18	L1	558	11	PAKRVRVRARK		41371
HPV18	L1	344	9	PASPGSCVY		41372
HPV18	L1	293	11	PDYLQMSADPY		41373
HPV18	L1	414	8	PGQYDATK		41374
HPV18	L1	414	10	PGQYDATKFK		41375
HPV18	L1	57	10	PIFLQMALWR		41376
HPV18	L1	282	10	PLDICQSICK		41377
HPV18	L1	282	11	PLDICQSICKY		41378
HPV18	L1	173	9	PLGVGLSGH		41379
HPV18	L1	28	8	PLHSILVY		41380
HPV18	L1	28	11	PLHSILVYMH		41381
HPV18	L1	26	10	PLPLHSILVY		41382
HPV18	L1	16	8	PLYGPLYH		41383
HPV18	L1	16	10	PLYGPLYHPR		41384
HPV18	L1	20	11	PLYIIPRPLH		41385
HPV18	L1	550	8	PSATTSSK		41386
HPV18	L1	550	11	PSATTSSKPAK		41387
HPV18	L1	540	8	PTIGPRKR		41388
HPV18	L1	472	9	PTTSLVDY		41389
HPV18	L1	472	10	PTTSLVDIYR		41390
HPV18	L1	412	10	PVPGQYDATK		41391
HPV18	L1	121	9	QDIPKVSAY		41392
HPV18	L1	121	11	QDIPKVSAYQY		41393
HPV18	L1	243	10	QGDCCPLELK		41394
HPV18	L1	378	10	QGHNGVCWH		41395
HPV18	L1	315	10	QLFARHFWR		41396
HPV18	L1	366	10	QLFNKPYWLH		41397
HPV18	L1	366	11	QLFNKPYWLIHK		41398

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	L1	287	9	QSICKYPDY		41399
HPV18	L1	410	8	QSPVPGQY		41400
HPV18	L1	484	9	QSVAITCQK		41401
HPV18	L1	205	8	RDNVSDY		41402
HPV18	L1	205	9	RDNVSDYK		41403
HPV18	L1	102	9	RLLTVGNPY		41404
HPV18	L1	102	11	RLLTVGNPYFR		41405
HPV18	L1	547	11	RSAPSATTSSK		41406
HPV18	L1	6	8	RVLIILYIH		41407
HPV18	L1	112	9	RVPAGGNIK		41408
HPV18	L1	135	9	RVQLDPNPK		41409
HPV18	L1	561	8	RVRVRARK		41410
HPV18	L1	81	8	RVVNTDDY		41411
HPV18	L1	548	10	SAPSATTSSK		41412
HPV18	L1	551	10	SATTSSKPAK		41413
HPV18	L1	551	11	SATTSSKPAKR		41414
HPV18	L1	127	9	SAYQYRVFR		41415
HPV18	L1	363	8	SDSQLFNK		41416
HPV18	L1	363	10	SDSQLFNKPY		41417
HPV18	L1	179	8	SGHPFYNK		41418
HPV18	L1	288	8	SICKYPDY		41419
HPV18	L1	93	10	SIFYHAGSSR		41420
HPV18	L1	31	8	SILVYMH		41421
HPV18	L1	150	9	SIYNPETQR		41422
HPV18	L1	518	11	SLDLQYPLGR		41423
HPV18	L1	306	8	SMFFCLRR		41424
HPV18	L1	198	8	SNVSEDVR		41425
HPV18	L1	555	9	SSKPAKRVR		41426
HPV18	L1	555	11	SSKPAKRVRVR		41427
HPV18	L1	100	11	SSRLTVGNPY		41428
HPV18	L1	408	10	STQSPVPQY		41429
HPV18	L1	485	8	SVAITCQK		41430
HPV18	L1	78	11	SVARVNTDDY		41431
HPV18	L1	446	9	TADVMSYIII		41432
HPV18	L1	442	11	TITLTADVMSY		41433
HPV18	L1	444	9	TLTADVMSY		41434
HPV18	L1	444	11	TLTADVMSYIH		41435
HPV18	L1	327	11	TMGDTVPQSLY		41436
HPV18	L1	362	9	TSDSQLFNK		41437
HPV18	L1	362	11	TSDSQLFNKPY		41438
HPV18	L1	92	11	TSIFYHAGSSR		41439
HPV18	L1	149	10	TSIYNPETQR		41440
HPV18	L1	474	8	TSLVDITYR		41441
HPV18	L1	197	9	TSNVSEDVR		41442
HPV18	L1	554	8	TSSKPAKR		41443
HPV18	L1	554	10	TSSKPAKRVR		41444

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	L1	473	8	TTSLVDIY		41445
HPV18	L1	473	9	TTSLVDIYR		41446
HPV18	L1	553	8	TTSSKPAK		41447
HPV18	L1	553	9	TTSSKPAKR		41448
HPV18	L1	553	11	TTSSKPAKRVR		41449
HPV18	L1	105	8	TVGNPYFR		41450
HPV18	L1	331	9	TVQSLYIK		41451
HPV18	L1	71	11	TVYLPSPVAR		41452
HPV18	L1	79	10	VARVNTDDY		41453
HPV18	L1	133	11	VFRVQLPDPNK		41454
HPV18	L1	176	9	VGLSGHPFY		41455
HPV18	L1	176	11	VGLSGHPFYNK		41456
HPV18	L1	126	10	VSAYQYRVER		41457
HPV18	L1	89	8	VTPTSIFY		41458
HPV18	L1	89	9	VTPTSIFYH		41459
HPV18	L1	361	10	VTSDSQLFNK		41460
HPV18	L1	161	10	WACAGVEIGR		41461
HPV18	L1	230	8	WAKGTACK		41462
HPV18	L1	230	10	WAKGTACKSR		41463
HPV18	L1	373	8	WLHKAQGH		41464
HPV18	L1	509	8	WNVDLKEK		41465
HPV18	L1	417	9	YDATKFKQY		41466
HPV18	L1	417	11	YDATKFKQYSR		41467
HPV18	L1	110	11	YFRVPAGGGNK		41468
HPV18	L1	303	10	YGDSMFFCLR		41469
HPV18	L1	303	11	YGDSMFFCLRR		41470
HPV18	L1	18	8	YGPLYHPR		41471
HPV18	L1	73	9	YLPPPSVAR		41472
HPV18	L1	295	9	YLQMSADPY		41473
HPV18	L1	35	10	YMHIIICGH		41474
HPV18	L1	35	11	YMHIIICGHY		41475
HPV18	L1	184	11	YNKLDDESSH		41476
HPV18	L1	425	8	YSRHVEEY		41477
HPV18	L1	4	8	YTRVLILH		41478
HPV18	L1	4	9	YTRVLILHY		41479
HPV18	L1	4	10	YTRVLILHYH		41480
HPV18	L1	88	9	YVTPTSIFY		41481
HPV18	L1	88	10	YVTPTSIFYH		41482
HPV18	L1	222	8	AGPRLYSR		41483
HPV18	L2	222	10	AGPRLYSRAY		41484
HPV18	L2	286	10	ALTSRRGTVR		41485
HPV18	L2	237	8	ANPEFLTR		41486
HPV18	L2	423	9	ASTQYIGH		41487
HPV18	L2	12	8	ASVTDLYK		41488
HPV18	L2	12	11	ASVTDLYKTK		41489
HPV18	L2	341	11	ATEDNDLFDIY		41490

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	L2	275	9	DFMDIIRLH		41491
HPV18	L2	275	10	DFMDIIRLHR		41492
HPV18	L2	322	11	DISPIAPSPEY		41493
HPV18	L2	354	11	DMDPAVPVPSR		41494
HPV18	L2	344	8	DNDLFDIY		41495
HPV18	L2	273	9	DSDFMDIIR		41496
HPV18	L2	273	11	DSDFMDIIRLH		41497
HPV18	L2	109	11	DSSVVTSGAPR		41498
HPV18	L2	260	9	DTTLTFDPR		41499
HPV18	L2	343	9	EDNDFDIY		41500
HPV18	L2	36	8	EGTTLADK		41501
HPV18	L2	443	8	FIPKKRRK		41502
HPV18	L2	443	11	FIPKKRRKRVPY		41503
HPV18	L2	241	11	FLTRPSSLITY		41504
HPV18	L2	276	8	FMDIIRLH		41505
HPV18	L2	276	9	FMDIIRLHR		41506
HPV18	L2	306	11	FTRSGTQIGAR		41507
HPV18	L2	181	10	FVGTPTSGTH		41508
HPV18	L2	314	8	GARVHFYH		41509
HPV18	L2	58	11	GIGTSGTGGR		41510
HPV18	L2	429	8	GIHGTHY		41511
HPV18	L2	62	10	GS GTGRTGY		41512
HPV18	L2	25	10	GTCPPDVVPK		41513
HPV18	L2	64	8	GTGRTGY		41514
HPV18	L2	60	9	GTSGTGGR		41515
HPV18	L2	432	10	GTHYYLWPLY		41516
HPV18	L2	432	11	GTHYYLWPLY		41517
HPV18	L2	183	8	GTPTSGTH		41518
HPV18	L2	183	10	GTPTSGTHGY		41519
HPV18	L2	310	9	GTQIGARVH		41520
HPV18	L2	310	11	GTQIGARVHFY		41521
HPV18	L2	292	11	GTVRFSRLGQR		41522
HPV18	L2	431	11	HGTHYYLWPLY		41523
HPV18	L2	313	8	IGARVHFY		41524
HPV18	L2	313	9	IGARVHFYH		41525
HPV18	L2	428	8	IGHGTIY		41526
HPV18	L2	428	9	IGHGTIYY		41527
HPV18	L2	59	10	IGTSGTGGR		41528
HPV18	L2	323	10	ISPIAPSPEY		41529
HPV18	L2	210	10	ISSTPLPTVR		41530
HPV18	L2	210	11	ISSTPLPTVRR		41531
HPV18	L2	34	10	KVEGTTLADK		41532
HPV18	L2	299	10	LQQRATMFTR		41533
HPV18	L2	242	10	LTRPSSLITY		41534
HPV18	L2	287	9	LTSSRGTVR		41535
HPV18	L2	391	10	LTSSWDVPVY		41536

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV18	L2	277	8	MDIIRLHR		41537
HPV18	L2	355	10	MDPAVPVPSR		41538
HPV18	L2	1	8	MVSHRAAR		41539
HPV18	L2	1	9	MVSHRAARR		41540
HPV18	L2	1	10	MVSHRAARRK		41541
HPV18	L2	1	11	MVSHRAARRKR		41542
HPV18	L2	79	10	NTVVDVGPTR		41543
HPV18	L2	285	11	PALTSRRGTVR		41544
HPV18	L2	422	10	PASTQYIGIH		41545
HPV18	L2	357	8	PAVPVPSR		41546
HPV18	L2	272	8	PDSEFMDIIR		41547
HPV18	L2	325	8	PIAPSPEY		41548
HPV18	L2	209	11	PISSTPLPTVR		41549
HPV18	L2	390	11	PLTSSWDVPVY		41550
HPV18	L2	439	8	PLYFFIPK		41551
HPV18	L2	439	9	PLYFFIPKK		41552
HPV18	L2	439	10	PLYFFIPKKR		41553
HPV18	L2	439	11	PLYFFIPKKRK		41554
HPV18	L2	419	9	PTAPASTQY		41555
HPV18	L2	376	9	PTISSASSY		41556
HPV18	L2	185	8	PTSGTIIGY		41557
HPV18	L2	216	10	PTVRRVAGPR		41558
HPV18	L2	258	11	PVDTLTLDPR		41559
HPV18	L2	312	9	QIGARVHFY		41560
HPV18	L2	312	10	QIGARVHFYH		41561
HPV18	L2	11	8	RASVTDLY		41562
HPV18	L2	11	9	RASVTDLYK		41563
HPV18	L2	295	8	RFSRLGQR		41564
HPV18	L2	291	8	RGTVRFSR		41565
HPV18	L2	298	11	RLGQRATMFTR		41566
HPV18	L2	281	10	RLHRPALTSTR		41567
HPV18	L2	281	11	RLHRPALTSTRR		41568
HPV18	L2	308	9	RSGTQIGAR		41569
HPV18	L2	308	11	RSGTQIGARVH		41570
HPV18	L2	364	10	RSTTSFAFFK		41571
HPV18	L2	364	11	RSTTSFAFFKY		41572
HPV18	L2	68	10	RTGYPLGGR		41573
HPV18	L2	220	8	RVAGPRLY		41574
HPV18	L2	220	10	RVAGPRLYSR		41575
HPV18	L2	274	8	SDFMDIIR		41576
HPV18	L2	274	10	SDFMDIIRLH		41577
HPV18	L2	274	11	SDFMDIIRLHR		41578
HPV18	L2	24	11	SGTCPPDVVPK		41579
HPV18	L2	63	9	SGTGGRTGY		41580
HPV18	L2	309	8	SGTQIGAR		41581
HPV18	L2	309	10	SGTQIGARVH		41582

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV18	L2	78	11	SNTVVDVGPTR	41583
HPV18	L2	211	9	SSTPLPTVR	41584
HPV18	L2	211	10	SSTPLPTVRR	41585
HPV18	L2	110	10	SSVVTSGAPR	41586
HPV18	L2	393	8	SSWDVPVY	41587
HPV18	L2	212	8	STPLPTVR	41588
HPV18	L2	212	9	STPLPTVRR	41589
HPV18	L2	424	8	STQYIGIH	41590
HPV18	L2	424	11	STQYIGIHGTH	41591
HPV18	L2	365	9	STTSFAFFK	41592
HPV18	L2	365	10	STTSFAFFKY	41593
HPV18	L2	235	10	SVANPEFLTR	41594
HPV18	L2	13	10	SVTDLYKTCK	41595
HPV18	L2	111	9	SVVTSGAPR	41596
HPV18	L2	420	8	TAPASTQY	41597
HPV18	L2	26	9	TCPPDVVPK	41598
HPV18	L2	15	8	TDLYKTCK	41599
HPV18	L2	61	8	TGSGTGGR	41600
HPV18	L2	61	11	TGSGTGGRIGY	41601
HPV18	L2	69	9	TGYPLGGR	41602
HPV18	L2	377	8	TISSASSY	41603
HPV18	L2	367	8	TSFAFFKY	41604
HPV18	L2	288	8	TSRRGTVR	41605
HPV18	L2	288	11	TSRRGTVRFSR	41606
HPV18	L2	392	9	TSSWDVPVY	41607
HPV18	L2	261	8	TTLTFDPR	41608
HPV18	L2	366	8	TTSFAFFK	41609
HPV18	L2	366	9	TTSFAFFKY	41610
HPV18	L2	293	10	TVRFSRLGQR	41611
HPV18	L2	217	9	TVRRVAGPR	41612
HPV18	L2	217	11	TVRRVAGPRLY	41613
HPV18	L2	80	9	TVVDVGPTR	41614
HPV18	L2	221	9	VAGPRLYSR	41615
HPV18	L2	221	11	VAGPRLYSRAY	41616
HPV18	L2	236	9	VANPEFLTR	41617
HPV18	L2	259	10	VDTLTFDPR	41618
HPV18	L2	180	11	VFGTPTSNGTH	41619
HPV18	L2	182	9	VGTPTSNGTH	41620
HPV18	L2	182	11	VGTPTSNGTHY	41621
HPV18	L2	2	8	VSHRAARR	41622
HPV18	L2	2	9	VSHRAARRK	41623
HPV18	L2	2	10	VSHRAARRKR	41624
HPV18	L2	417	11	VSPAPASTQY	41625
HPV18	L2	234	11	VSVANPEFLTR	41626
HPV18	L2	14	9	VTDLYKTCK	41627
HPV18	L2	81	8	VVDVGPTR	41628

Seq. Id. No.

Type	Protein	Position	No. of Amino Acids	Sequence
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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No
HPV18	L2	112	8	VVTSGAPR	41629
HPV18	L2	442	8	YFIPKKRK	41630
HPV18	L2	442	9	YFIPKKRR	41631
HPV18	L2	427	8	YIGHGTH	41632
HPV18	L2	427	9	YIGHGTHY	41633
HPV18	L2	427	10	YIGHGTHY	41634
HPV18	L2	436	11	YLWPLYFIPK	41635
HPV18	L2	374	11	YSPTISSASSY	41636
HPV31	E1	296	8	AAALYWYR	41637
HPV31	E1	185	8	AAMLGKFK	41638
HPV31	E1	185	11	AAMLGKFKELY	41639
HPV31	E1	371	10	AFLKNSQAK	41640
HPV31	E1	550	9	AGKDDRWPY	41641
HPV31	E1	550	11	AGKDDRWPYLH	41642
HPV31	E1	111	9	AICIENNSK	41643
HPV31	E1	68	11	ALFHAQEAEEH	41644
HPV31	E1	439	11	ALKFLKGVPK	41645
HPV31	E1	186	10	AMLGKFKELY	41646
HPV31	E1	504	8	ATTPCWHY	41647
HPV31	E1	81	8	AVQVLKRK	41648
HPV31	E1	81	9	AVQVLKRKY	41649
HPV31	E1	370	11	CAFLKNSQAK	41650
HPV31	E1	263	10	CAKNRITIEK	41651
HPV31	E1	410	11	CDKVSDEGDWR	41652
HPV31	E1	385	8	CGTMCRIHY	41653
HPV31	E1	385	9	CGTMCRIHYK	41654
HPV31	E1	385	10	CGTMCRIHYKR	41655
HPV31	E1	113	10	CIENNSKTAK	41656
HPV31	E1	113	11	CIENNSKTAKR	41657
HPV31	E1	477	9	CIISYANSK	41658
HPV31	E1	477	11	CIISYANSKSH	41659
HPV31	E1	284	8	CMLIQPPK	41660
HPV31	E1	284	10	CMLIQPPKLR	41661
HPV31	E1	155	8	CNGSDGTH	41662
HPV31	E1	155	11	CNGSDGTHSER	41663
HPV31	E1	100	9	CVDYNISPR	41664
HPV31	E1	100	11	CVDYNISPRLK	41665
HPV31	E1	620	8	CVSGQNIR	41666
HPV31	E1	503	8	DATTPCWH	41667
HPV31	E1	503	9	DATTPCWHY	41668
HPV31	E1	384	8	DCGTMCRIH	41669
HPV31	E1	384	9	DCGTMCRIHY	41670
HPV31	E1	384	10	DCGTMCRIHYK	41671
HPV31	E1	384	11	DCGTMCRIHYKR	41672
HPV31	E1	502	9	DDATTPCWH	41673
HPV31	E1	502	10	DDATTPCWHY	41674

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E1	553	8	DDRWPYLH		41675
HPV31	E1	553	10	DDRWPYLHSR		41676
HPV31	E1	351	8	DDSEIAYK		41677
HPV31	E1	351	9	DDSEIAYKY		41678
HPV31	E1	49	9	DFIDNCNVY		41679
HPV31	E1	611	9	DGDSFSTFK		41680
HPV31	E1	521	10	DGNPVSIDVK		41681
HPV31	E1	521	11	DGNPVSIDVKH		41682
HPV31	E1	96	8	DISSCVDY		41683
HPV31	E1	421	8	DIVKFLRY		41684
HPV31	E1	336	10	DLSQMVQWAY		41685
HPV31	E1	364	11	DSDSNACAFK		41686
HPV31	E1	352	8	DSEIAYKY		41687
HPV31	E1	366	9	DSNACAFK		41688
HPV31	E1	528	11	DVKHKALMLK		41689
HPV31	E1	348	10	DVMDDSEIAY		41690
HPV31	E1	348	11	DVMDDSEIAYK		41691
HPV31	E1	62	10	EAETAQALFH		41692
HPV31	E1	80	8	EAVQVLKR		41693
HPV31	E1	80	9	EAVQVLKRR		41694
HPV31	E1	80	10	EAVQVLKRKY		41695
HPV31	E1	432	10	EFVSFLSALK		41696
HPV31	E1	416	9	EGDWRDIVK		41697
HPV31	E1	229	10	EGFKTLQPY		41698
HPV31	E1	10	10	EGTGCNGWFY	0.0002	41699
HPV31	E1	201	10	ELIRPFQSNK		41700
HPV31	E1	583	8	ELSDKNWK		41701
HPV31	E1	609	11	ENDGDSFSTFK		41702
HPV31	E1	115	8	ENNSKTAK		41703
HPV31	E1	115	9	ENNSKTAKR		41704
HPV31	E1	115	10	ENNSKTAKRR		41705
HPV31	E1	64	8	ETAQALFH		41706
HPV31	E1	315	8	ETPEWIER		41707
HPV31	E1	574	9	FDKNGNPVY		41708
HPV31	E1	335	11	FDSLQMVQWAY		41709
HPV31	E1	592	8	FFSRTWCR		41710
HPV31	E1	50	8	FIDNCNVY		41711
HPV31	E1	443	8	FLKGVPKK		41712
HPV31	E1	372	9	FLKSNQAK	0.0002	41713
HPV31	E1	473	9	FLQCIISY		41714
HPV31	E1	436	10	FLSALKLFLK		41715
HPV31	E1	593	11	FSRTWCRNLH		41716
HPV31	E1	566	11	FTFPNPPFDK		41717
HPV31	E1	433	9	FVSFLSALK		41718
HPV31	E1	457	9	GAPNTGKSY		41719
HPV31	E1	476	10	GCIISYANSK		41720

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E1	612	8	GDSFSTFK		41721
HPV31	E1	417	8	GDWRDIVK		41722
HPV31	E1	417	11	GDWRDIVKFLR		41723
HPV31	E1	230	9	GFKTLQPY		41724
HPV31	E1	305	9	GMSNISDVY		41725
HPV31	E1	252	9	GMVMLMLVR		41726
HPV31	E1	252	11	GMVMLMLVRFK		41727
HPV31	E1	522	9	GNPVSIDVK		41728
HPV31	E1	522	10	GNPVSIDVKH		41729
HPV31	E1	522	11	GNPVSIDVKIHK		41730
HPV31	E1	578	10	GNPVYELSDK		41731
HPV31	E1	157	9	GSDGTHSER		41732
HPV31	E1	11	9	GTGCGWFY		41733
HPV31	E1	386	8	GTMCRIYK		41734
HPV31	E1	386	9	GTMCRIYKR		41735
HPV31	E1	225	8	GTVAEGFK		41736
HPV31	E1	446	11	GVPKKNCILIH		41737
HPV31	E1	196	9	GVSMELIR		41738
HPV31	E1	222	11	GVTGTVAEGFK		41739
HPV31	E1	78	9	HAEAVQVLK		41740
HPV31	E1	78	10	HAEAVQVLKR		41741
HPV31	E1	71	11	HAEAVQVLKRK		41742
HPV31	E1	487	8	HAQEAEEH		41743
HPV31	E1	456	11	HFWLQPLADAK		41744
HPV31	E1	456	8	HGAPNTGK		41745
HPV31	E1	456	10	HGAPNTGKSY		41746
HPV31	E1	162	11	ISERENETPTR		41747
HPV31	E1	112	8	ICIENNSK		41748
HPV31	E1	112	11	ICIENNSKTAK		41749
HPV31	E1	478	8	IISYANSK		41750
HPV31	E1	478	10	IISYANSKSH		41751
HPV31	E1	453	11	LIHGAPNTGK		41752
HPV31	E1	174	11	ILQVLKTSNGK		41753
HPV31	E1	548	8	INAGKDDR		41754
HPV31	E1	548	11	INAGKDDRWPY		41755
HPV31	E1	471	11	ISFLQCCIISY		41756
HPV31	E1	479	9	ISYANSKSH		41757
HPV31	E1	268	9	ITIEKLLK		41758
HPV31	E1	544	9	ITSNINAGK		41759
HPV31	E1	381	10	IVKDCGTMC		41760
HPV31	E1	381	11	IVKDCGTMCRII		41761
HPV31	E1	184	9	KAAMLGKFK		41762
HPV31	E1	110	10	KAICIENNSK		41763
HPV31	E1	262	11	KCAKNRITIEK		41764
HPV31	E1	619	9	KCVSGQNIR		41765
HPV31	E1	383	8	KDCGTMC		41766

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E1	383	9	KDCGTMCRH		41767
HPV31	E1	383	10	KDCGTMCRHY		41768
HPV31	E1	383	11	KDCGTMCRHYK		41769
HPV31	E1	552	9	KDDRWPYLI		41770
HPV31	E1	552	11	KDDRWPYLHSR		41771
HPV31	E1	380	11	KIVKDCGTMCR		41772
HPV31	E1	441	9	KLFLKGVPK		41773
HPV31	E1	441	10	KLFLKGVPKK		41774
HPV31	E1	291	10	KLRSTAAALY		41775
HPV31	E1	265	8	KNRITIEK		41776
HPV31	E1	587	9	KNWKSFSR		41777
HPV31	E1	590	10	KSFFSRTWCR		41778
HPV31	E1	374	10	KSNSQAKIVK		41779
HPV31	E1	232	10	KTLLQPYCLY		41780
HPV31	E1	412	9	KVSDGDWR		41781
HPV31	E1	501	10	LDDATTPCWH		41782
HPV31	E1	501	11	LDDATTPCWHY		41783
HPV31	E1	520	11	LDGNPVSIDVK		41784
HPV31	E1	125	9	LFELPDSGY		41785
HPV31	E1	69	10	LFHAQEAEEH		41786
HPV31	E1	442	8	LFLKGVPK		41787
HPV31	E1	442	9	LFLKGVPKK		41788
HPV31	E1	188	8	LQKPKELY		41789
HPV31	E1	454	10	LHGAPNTGK		41790
HPV31	E1	286	8	LIQPPKLR		41791
HPV31	E1	202	9	LIRPFQSNK		41792
HPV31	E1	543	10	LITSNINAGK		41793
HPV31	E1	542	11	LLTSNINAGK		41794
HPV31	E1	234	8	LLQPYCLY		41795
HPV31	E1	234	10	LLQPYCLYCH		41796
HPV31	E1	256	10	LMLVRFKCAK		41797
HPV31	E1	600	9	LNLHEEDK		41798
HPV31	E1	437	9	LSALKLFLK		41799
HPV31	E1	153	10	LSCNGSDGTH		41800
HPV31	E1	94	10	LSDISSCVDY		41801
HPV31	E1	337	9	LSQMVQWAY		41802
HPV31	E1	258	8	LVRFKCAK		41803
HPV31	E1	258	10	LVRFKCAKNR		41804
HPV31	E1	388	10	MCRHYKRAEK		41805
HPV31	E1	388	11	MCRIYKRAEKR		41806
HPV31	E1	350	8	MDDSEIAY		41807
HPV31	E1	350	9	MDDSEIAYK		41808
HPV31	E1	350	10	MDDSEIAYKY		41809
HPV31	E1	402	8	MGQWIKSR		41810
HPV31	E1	402	11	MGQWIKSRCDK		41811
HPV31	E1	500	11	MLDDATTPCWH		41812

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E1	187	9	MLGKFELY		41813
HPV31	E1	285	9	MLIQPKLR		41814
HPV31	E1	255	8	MLMLVRFK	0.0014	41815
HPV31	E1	255	11	MLMLVRFKCAK		41816
HPV31	E1	257	9	MLVRFKCAK		41817
HPV31	E1	257	11	MLVRFKCAKNR		41818
HPV31	E1	400	8	MSMGQWIK		41819
HPV31	E1	400	10	MSMGQWIKSR		41820
HPV31	E1	306	8	MSNISDVY		41821
HPV31	E1	47	11	MVDFIDNCNVY		41822
HPV31	E1	253	8	MVMLMLVR		41823
HPV31	E1	253	10	MVMLMLVRFK		41824
HPV31	E1	549	10	NAGKDDRWPY		41825
HPV31	E1	283	9	NCMLIQPPK		41826
HPV31	E1	283	11	NCMLIQPKLR		41827
HPV31	E1	610	10	NDGDSFTEK		41828
HPV31	E1	347	11	NDVMDDEIAY		41829
HPV31	E1	182	9	NGKAAMLGK		41830
HPV31	E1	182	11	NGKAAMLGKFK		41831
HPV31	E1	577	11	NGNPVVELSDK		41832
HPV31	E1	156	10	NGSDGTHSER		41833
HPV31	E1	547	9	NINAGKDDR		41834
HPV31	E1	601	8	NLHEEDK		41835
HPV31	E1	116	8	NNSKTAKR		41836
HPV31	E1	116	9	NNSKTAKRR		41837
HPV31	E1	117	8	NSKTAKRR		41838
HPV31	E1	376	8	NSQAKIVK		41839
HPV31	E1	507	9	PCWHYIDNY		41840
HPV31	E1	507	11	PCWHYIDNYLR		41841
HPV31	E1	573	10	PFDKNGNPVY		41842
HPV31	E1	93	11	PLSDISSCVDY		41843
HPV31	E1	569	8	PNPEPFDK		41844
HPV31	E1	170	10	PTRNILQVLK		41845
HPV31	E1	524	8	PVSIDVKH		41846
HPV31	E1	524	9	PVSIDVKIHK		41847
HPV31	E1	580	8	PVVELSDK		41848
HPV31	E1	580	11	PVVELSDKNWK		41849
HPV31	E1	475	11	QGCIISYANSK		41850
HPV31	E1	399	9	QMSMGQWIK		41851
HPV31	E1	399	11	QMSMGQWIKSR		41852
HPV31	E1	176	9	QVLKTSNGK		41853
HPV31	E1	420	8	RDIVKFLR		41854
HPV31	E1	420	9	RDIVKFLRY		41855
HPV31	E1	260	8	RFKCAKNR		41856
HPV31	E1	267	10	RITIEKLLEK		41857
HPV31	E1	124	10	RLFELPDSGY		41858

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E1	599	10	RLNLHIEEDK		41859
HPV31	E1	172	8	RNQLVLK		41860
HPV31	E1	293	8	RSTAAALY		41861
HPV31	E1	293	10	RSTAAALYWY		41862
HPV31	E1	293	11	RSTAAALYWYR		41863
HPV31	E1	303	11	RTGMSNISDVY		41864
HPV31	E1	595	9	RTWCRNLH		41865
HPV31	E1	438	8	SALKLFLK		41866
HPV31	E1	154	9	SCNGSDGTH		41867
HPV31	E1	99	10	SCVDYNISPR		41868
HPV31	E1	414	11	SDEGDWRDIVK		41869
HPV31	E1	158	8	SDGTHSER		41870
HPV31	E1	95	9	SDISSCVDY		41871
HPV31	E1	585	11	SDKNWKSFESR		41872
HPV31	E1	365	10	SDSNACAFK		41873
HPV31	E1	591	9	SFFSRTWCR		41874
HPV31	E1	472	10	SFLQGCISY		41875
HPV31	E1	435	11	SFLSALKLFLK		41876
HPV31	E1	401	9	SMGQWIKSR		41877
HPV31	E1	367	8	SNACAFK		41878
HPV31	E1	181	10	SNGKAAMLGK		41879
HPV31	E1	546	10	SNINAGKDDR		41880
HPV31	E1	375	9	SNSQAKIVK		41881
HPV31	E1	98	11	SSCVDYNISPR		41882
HPV31	E1	294	9	STAAALYWY		41883
HPV31	E1	294	10	STAAALYWYR		41884
HPV31	E1	281	11	STNCMLIQPK		41885
HPV31	E1	295	8	TAAALYWY		41886
HPV31	E1	295	9	TAAALYWYR		41887
HPV31	E1	617	11	TFKCVSGQNI		41888
HPV31	E1	567	10	TFPNPFPDK		41889
HPV31	E1	12	8	TGCNGWFY		41890
HPV31	E1	304	10	TGMSNISDVY		41891
HPV31	E1	224	9	TGTVAEQFK		41892
HPV31	E1	269	8	TIEKLLEK		41893
HPV31	E1	233	9	TLLQPYCLY		41894
HPV31	E1	233	11	TLLQPYCLYCH		41895
HPV31	E1	152	11	TLSCNGSDGTH		41896
HPV31	E1	387	8	TMCRIYKRAEK		41897
HPV31	E1	387	11	TMCRIYKRAEK		41898
HPV31	E1	282	10	TNCMLIQPK		41899
HPV31	E1	180	11	TSNGKAAMLGK		41900
HPV31	E1	545	8	TSNINAGK		41901
HPV31	E1	505	11	TSNINAGKDDR		41902
HPV31	E1	505	11	TTPCWHYIDNY		41903
HPV31	E1	48	10	VDFDNCNVY		41904

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E1	101	8	VDYNISPR		41905
HPV31	E1	101	10	VDYNISPRLK		41906
HPV31	E1	177	8	VLKTSNGK		41907
HPV31	E1	349	9	VMDDSEIAY		41908
HPV31	E1	349	10	VMDDSEIAYK		41909
HPV31	E1	349	11	VMDDSEIAYKY		41910
HPV31	E1	254	9	VMLMLVRFK		41911
HPV31	E1	413	8	VSDEGDWR		41912
HPV31	E1	434	8	VSFLSALK		41913
HPV31	E1	197	8	VSMELIR		41914
HPV31	E1	525	8	VSIDVKHK		41915
HPV31	E1	223	10	VTGTVAEGFK		41916
HPV31	E1	17	10	WFYVEAVIDR		41917
HPV31	E1	251	10	WGMVMLMLVR		41918
HPV31	E1	319	10	WIERQTVLQH		41919
HPV31	E1	405	8	WIKSRCDK		41920
HPV31	E1	489	9	WLQPLADAK		41921
HPV31	E1	313	10	YGETPEWIER		41922
HPV31	E1	195	10	YGVSMELIR		41923
HPV31	E1	103	8	YNISPRLK		41924
HPV31	E1	19	8	YVEAVIDR		41925
HPV31	E2	277	9	AACTNQTR		41926
HPV31	E2	278	8	AACTNQTR		41927
HPV31	E2	229	9	ALGTSEGVR		41928
HPV31	E2	229	10	ALGTSEGVRR		41929
HPV31	E2	61	8	ALSVSKAK		41930
HPV31	E2	302	8	ANILKCLR		41931
HPV31	E2	302	9	ANILKCLRY		41932
HPV31	E2	302	10	ANILKCLRYR		41933
HPV31	E2	217	10	ANNTTSNSK		41934
HPV31	E2	291	9	ATTPIHLK		41935
HPV31	E2	239	9	ATTSTKRPR		41936
HPV31	E2	228	10	CALGTSEGVR		41937
HPV31	E2	228	11	CALGTSEGVRR		41938
HPV31	E2	27	8	CDHIDYWK		41939
HPV31	E2	27	9	CDHIDYWKH		41940
HPV31	E2	27	11	CDHIDYWKHIR		41941
HPV31	E2	307	8	CLRYRLSK		41942
HPV31	E2	307	9	CLRYRLSKY		41943
HPV31	E2	307	10	CLRYRLSKYK		41944
HPV31	E2	145	11	CTVVEGOVNCK		41945
HPV31	E2	40	8	CVLMYKAR		41946
HPV31	E2	301	9	DANILKCLR		41947
HPV31	E2	301	10	DANILKCLRY		41948
HPV31	E2	301	11	DANILKCLRYR		41949
HPV31	E2	351	8	DDFLNTVK		41950

0.0002

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E2	122	9	DGDVHNTMH		41951
HPV31	E2	122	10	DGDVHNTMHY		41952
HPV31	E2	22	8	DSKRLCDH		41953
HPV31	E2	22	11	DSKRLCDHIDY		41954
HPV31	E2	124	8	DVHNTMHY		41955
HPV31	E2	174	9	EAKKYGTGK		41956
HPV31	E2	174	10	EAKKYGTGKK		41957
HPV31	E2	39	9	ECVLMYKAR		41958
HPV31	E2	149	10	EGQVNCCKGIY		41959
HPV31	E2	149	11	EGQVNCCKGIYY		41960
HPV31	E2	234	11	EGVRRATTSTK		41961
HPV31	E2	204	10	EISFAGIVTK		41962
HPV31	E2	48	9	EMGIHSINH		41963
HPV31	E2	20	10	ENDSKRLCDH		41964
HPV31	E2	80	8	ETLNNTEY		41965
HPV31	E2	80	9	ETLNNTEYK		41966
HPV31	E2	118	9	EVQFDGDVH		41967
HPV31	E2	121	10	FDGDVIINTMH		41968
HPV31	E2	121	11	FDGDVHNTMHY		41969
HPV31	E2	171	8	FTEEAKKY		41970
HPV31	E2	168	9	FVNFTEEAK		41971
HPV31	E2	168	10	FVNFTEEAKK		41972
HPV31	E2	168	11	FVNFTEEAKKY		41973
HPV31	E2	108	8	GCLKKHGY		41974
HPV31	E2	300	10	GDANILKCLR		41975
HPV31	E2	300	11	GDANILKCLRY		41976
HPV31	E2	123	8	GDVHNTMH		41977
HPV31	E2	123	9	GDVHNTMHY		41978
HPV31	E2	156	9	GIYYVHEGH		41979
HPV31	E2	179	9	GTGKKWEVH		41980
HPV31	E2	231	8	GTSEGVRR		41981
HPV31	E2	235	10	GVRATTSTK		41982
HPV31	E2	235	11	GVRATTSTKR		41983
HPV31	E2	29	9	HIDYWKHIR		41984
HPV31	E2	35	10	HIRECVLMY		41985
HPV31	E2	35	11	HIRECVLMYK		41986
HPV31	E2	297	10	HLKGDANILK		41987
HPV31	E2	126	10	HNTMIYTNWK		41988
HPV31	E2	30	8	IDYWKIIR		41989
HPV31	E2	15	10	ILEHYENDSK		41990
HPV31	E2	15	11	ILEHYENDSKR		41991
HPV31	E2	304	8	ILKCLRYR		41992
HPV31	E2	304	11	ILKCLRYRLSK		41993
HPV31	E2	275	11	ISAAACTNQR		41994
HPV31	E2	205	9	ISFAGIVTK		41995
HPV31	E2	45	8	KAREMGH		41996

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E2	306	9	KCLRYRLSK		41997
HPV31	E2	306	10	KCLRYRLSKY		41998
HPV31	E2	306	11	KCLRYRLSKYK		41999
HPV31	E2	299	8	KGDANILK		42000
HPV31	E2	299	11	KGDANILKCLR		42001
HPV31	E2	155	10	KGIYVHEGH		42002
HPV31	E2	14	11	KLEIHYENDSK		42003
HPV31	E2	336	9	KNAIVTLTY		42004
HPV31	E2	26	9	LCDHIDYWK		42005
HPV31	E2	26	10	LCDHIDYWVKH		42006
HPV31	E2	230	8	LGTSEGVR		42007
HPV31	E2	230	9	LGTSEGVRR		42008
HPV31	E2	42	11	LMYKAREMGH		42009
HPV31	E2	8	11	LNVCQDKILEH		42010
HPV31	E2	312	8	LSKYKQLY		42011
HPV31	E2	4	11	LSQRLNVCQDK		42012
HPV31	E2	103	9	LTAPTGLK		42013
HPV31	E2	103	10	LTAPTGLCKK		42014
HPV31	E2	103	11	LTAPTGLCKKH		42015
HPV31	E2	342	9	LYISTSOR		42016
HPV31	E2	49	8	MGIHSINH		42017
HPV31	E2	78	10	MLETLNNTY		42018
HPV31	E2	78	11	MLETLNNTYK		42019
HPV31	E2	77	11	MLETLNNTY		42020
HPV31	E2	337	8	NAIVTLTY		42021
HPV31	E2	153	9	NCKGIYVH		42022
HPV31	E2	21	9	NSKRLCDH		42023
HPV31	E2	170	8	NFTEEAKK		42024
HPV31	E2	170	9	NFTEEAKKY		42025
HPV31	E2	303	8	NILKCLRY		42026
HPV31	E2	303	9	NILKCLRYR		42027
HPV31	E2	218	9	NNTTNSK		42028
HPV31	E2	254	10	NTHIPNKLRL		42029
HPV31	E2	127	9	NTMIYTNWK		42030
HPV31	E2	219	8	NTTNSK		42031
HPV31	E2	361	9	NTVSVSTGY		42032
HPV31	E2	9	10	NVCQDKILEH		42033
HPV31	E2	9	11	NVCQDKILEHY		42034
HPV31	E2	60	9	PALSVSKAK		42035
HPV31	E2	290	8	PATPIIH		42036
HPV31	E2	290	10	PATPIIHLK		42037
HPV31	E2	360	10	PNTVSVSTGY		42038
HPV31	E2	106	8	PTGCLKKH		42039
HPV31	E2	106	10	PTGCLKKHGY		42040
HPV31	E2	12	8	QDKILEHY		42041
HPV31	E2	120	11	QFDGDVHNTMH		42042

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E2	317	11	QLYEQVSSTWH		42043
HPV31	E2	151	8	QVNCCKGIY		42044
HPV31	E2	151	9	QVNCCKGIYY		42045
HPV31	E2	151	11	QVNCCKGIYYVH		42046
HPV31	E2	57	10	QVVPALSVSK		42047
HPV31	E2	238	8	RATTSTKR		42048
HPV31	E2	238	10	RATTSTKRPR		42049
HPV31	E2	350	9	RDDFLNTVK		42050
HPV31	E2	25	8	RLCDHIDY		42051
HPV31	E2	25	10	RLCDHIDYWK		42052
HPV31	E2	25	11	RLCDHIDYWKKH		42053
HPV31	E2	37	8	RLBCVLMY		42054
HPV31	E2	37	9	RLBCVLMYK		42055
HPV31	E2	37	11	RLBCVLMYKAR		42056
HPV31	E2	7	8	RLNVCQDK		42057
HPV31	E2	311	9	RLSKYQLY		42058
HPV31	E2	253	8	RNTHHPNK		42059
HPV31	E2	253	11	RNTHHPNKLLR		42060
HPV31	E2	247	10	RTEPEHRNTH		42061
HPV31	E2	247	11	RTEPEHRNTHH		42062
HPV31	E2	276	10	SAAACTNQTR		42063
HPV31	E2	288	10	SCPATPIIH		42064
HPV31	E2	206	8	SFAGIVTK		42065
HPV31	E2	242	11	STKRPRTEPEH		42066
HPV31	E2	324	11	STWHWTCTDGK		42067
HPV31	E2	216	11	TANNTTSNSK		42068
HPV31	E2	104	8	TAPTGLK		42069
HPV31	E2	104	9	TAPTGLKK		42070
HPV31	E2	104	10	TAPTGLKKH		42071
HPV31	E2	227	11	TCALGTSEGV		42072
HPV31	E2	329	8	TCTDGKHK		42073
HPV31	E2	107	9	TGCLKKHGY		42074
HPV31	E2	180	8	TGKKWEVH		42075
HPV31	E2	81	8	TLNNTYK		42076
HPV31	E2	341	10	TLTYISTSQR		42077
HPV31	E2	128	8	TMHYTNWK		42078
HPV31	E2	128	11	TMHYTNWKFIY		42079
HPV31	E2	93	10	TMQQTSLELY		42080
HPV31	E2	292	8	TTPIHLK		42081
HPV31	E2	240	8	TTSTKRPR		42082
HPV31	E2	116	11	TVEVQFDGDVH		42083
HPV31	E2	362	8	TVSVSTGY		42084
HPV31	E2	146	10	TVVEGQVNCK		42085
HPV31	E2	10	9	VCQDKILEH		42086
HPV31	E2	10	10	VCQDKILEHY		42087
HPV31	E2	152	8	VNCKGIYY		42088

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E2	152	10	VNCKGIYVH		42089
HPV31	E2	169	8	VNFTEEAK		42090
HPV31	E2	169	9	VNFTEEAKK		42091
HPV31	E2	169	10	VNFTEEAKKY		42092
HPV31	E2	287	11	VSCPAITPIH		42093
HPV31	E2	340	11	VTLYISTSQR		42094
HPV31	E2	147	9	VVEGVNCK		42095
HPV31	E2	58	9	VVPALSVSK		42096
HPV31	E2	58	11	VVPALSVSKAK		42097
HPV31	E2	328	8	WTCTDGKH		42098
HPV31	E2	328	9	WTCTDGKHK		42099
HPV31	E2	92	11	WTMQQTSLELY		42100
HPV31	E2	167	10	YFVNFTEEAK		42101
HPV31	E2	167	11	YFVNFTEEAKK		42102
HPV31	E2	178	10	YGTGKKWEVH		42103
HPV31	E2	102	10	YLTAPTGLK		42104
HPV31	E2	102	11	YLTAPTGLKK		42105
HPV31	E2	131	8	YTNWKFIY		42106
HPV31	E2	159	9	YVHEGHIY		42107
HPV31	E5	53	11	ATSPLRCFCIY		42108
HPV31	E5	59	10	CFCIYVVFY		42109
HPV31	E5	61	8	CIYVVFY		42110
HPV31	E5	20	11	CVLLFVCLVIR		42111
HPV31	E5	60	9	FCIYVVFY		42112
HPV31	E5	66	10	FYIPLFVIH		42113
HPV31	E5	48	11	ILWVIATSPRL		42114
HPV31	E5	23	8	LFVCLVIR		42115
HPV31	E5	22	9	LLFVCLVIR		42116
HPV31	E5	32	8	LVLVSVMY		42117
HPV31	E5	70	8	PLFVIH		42118
HPV31	E5	56	8	PLRCFCIY		42119
HPV31	E5	31	9	PLVLSVMY		42120
HPV31	E5	58	11	RCFCIYVVFY		42121
HPV31	E5	54	10	TSPRLRCFCIY		42122
HPV31	E5	65	11	VFIYPLFVIH		42123
HPV31	E5	51	8	VIATSPRL		42124
HPV31	E5	21	10	VLLFVCLVIR		42125
HPV31	E5	50	9	WVIATSPRL		42126
HPV31	E5	68	8	YIPLFVIH		42127
HPV31	E5	68	10	YIPLFVIH		42128
HPV31	E6	46	9	AFTDLTIY		42129
HPV31	E6	46	10	AFTDLTIYR		42130
HPV31	E6	18	10	ALEIPYDELR		42131
HPV31	E6	136	9	CIACWRRPR		42132
HPV31	E6	63	8	CTKCLRFY		42133
HPV31	E6	63	10	CTKCLRFYSK		42134

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E6	56	10	DDTPHGVCTK		42135
HPV31	E6	44	11	DFAFTDLTIVY		42136
HPV31	E6	98	11	DLIRCTCQR		42137
HPV31	E6	57	9	DTPHGVCTK		42138
HPV31	E6	75	10	EFRWYRYSVY		42139
HPV31	E6	20	8	EIPYDELR		42140
HPV31	E6	25	8	ELRLNCVY		42141
HPV31	E6	25	10	ELRLNCVYCK		42142
HPV31	E6	14	10	ELSSALEIPY		42143
HPV31	E6	45	10	FAFTDLTIVY		42144
HPV31	E6	45	11	FAFTDLTIVYR		42145
HPV31	E6	47	8	FTDLTIVY		42146
HPV31	E6	47	9	FTDLTIVYR		42147
HPV31	E6	95	8	GICDLLJR		42148
HPV31	E6	85	10	GTTLEKLTNK		42149
HPV31	E6	61	8	GVCTKCLR		42150
HPV31	E6	61	10	GVCTKCLR FY		42151
HPV31	E6	60	9	HGVCTKCLR		42152
HPV31	E6	60	11	HGVCTKCLR FY		42153
HPV31	E6	118	9	HLDKKKRFH		42154
HPV31	E6	126	10	HNIGGRWTGR		42155
HPV31	E6	137	8	IACWRRPR		42156
HPV31	E6	128	8	IGGRWTGR		42157
HPV31	E6	52	9	IVYRDDTPH		42158
HPV31	E6	65	8	KCLRFYSK		42159
HPV31	E6	94	9	KGICDLLJR		42160
HPV31	E6	3	8	KNPAERPR		42161
HPV31	E6	3	9	KNPAERPRK		42162
HPV31	E6	3	11	KNPAERPRKLH		42163
HPV31	E6	72	8	KVSEFRWY		42164
HPV31	E6	72	9	KVSEFRWYR		42165
HPV31	E6	72	10	KVSEFRWYRY		42166
HPV31	E6	110	8	LCPEEKQR		42167
HPV31	E6	110	9	LCPEEKQRH	0.0001	42168
HPV31	E6	119	8	LDKKKKRFH		42169
HPV31	E6	100	9	LIRCTCQR		42170
HPV31	E6	99	10	LLIRCTCQR		42171
HPV31	E6	15	9	LSSALEIPY		42172
HPV31	E6	50	11	LTIVYRDDTPH		42173
HPV31	E6	1	8	MFKNPAER		42174
HPV31	E6	1	10	MFKNPAERPR		42175
HPV31	E6	1	11	MFKNPAERPRK		42176
HPV31	E6	127	9	NIGGRWTGR		42177
HPV31	E6	5	9	PAERPRKLH		42178
HPV31	E6	109	9	PLCPEEKQR	0.0005	42179
HPV31	E6	109	10	PLCPEEKQRH		42180

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E6	135	8	RCIACWRR		42181
HPV31	E6	135	10	RCIACWRRPR		42182
HPV31	E6	55	11	RDDTPHGVCTK		42183
HPV31	E6	124	8	RFHNIGGR		42184
HPV31	E6	68	10	RFYSKVSEFR		42185
HPV31	E6	27	8	RLNCVYCK		42186
HPV31	E6	17	11	SALEIPYDELR		42187
HPV31	E6	16	8	SSALEIPY		42188
HPV31	E6	82	9	SVYGTILEK		42189
HPV31	E6	105	11	TCQRPLCPEEK		42190
HPV31	E6	48	8	TDLTIVYR		42191
HPV31	E6	133	9	TGRCIACWR		42192
HPV31	E6	133	10	TGRCIACWRR		42193
HPV31	E6	51	10	TIVYRDDTPH		42194
HPV31	E6	87	8	TLEKLTNK		42195
HPV31	E6	92	11	TNKGICDLLIR		42196
HPV31	E6	86	9	TLEKLTNK		42197
HPV31	E6	62	9	VCTKCLRFY		42198
HPV31	E6	62	11	VCTKCLRFYSK		42199
HPV31	E6	73	8	VSEFRWYR		42200
HPV31	E6	73	9	VSEFRWYR		42201
HPV31	E6	132	10	WTGRCIACWR		42202
HPV31	E6	132	11	WTGRCIACWRR		42203
HPV31	E6	23	10	YDELRNCVY		42204
HPV31	E6	84	11	YGTTLKLTNK		42205
HPV31	E6	70	8	YSKVSEFR		42206
HPV31	E6	70	10	YSKVSEFRWY		42207
HPV31	E6	70	11	YSKVSEFRWYR		42208
HPV31	E6	81	10	YSVYGTILEK		42209
HPV31	E7	42	11	AGQAEPTSNY		42210
HPV31	E7	58	9	CCQCKSTLR		42211
HPV31	E7	68	10	CVQSTQVDIR		42212
HPV31	E7	14	10	DLQPEATDLH		42213
HPV31	E7	18	8	EATDLHCY		42214
HPV31	E7	4	8	ETPTLQDY		42215
HPV31	E7	57	10	FCCQCKSTLR		42216
HPV31	E7	87	11	FGVCPNCSTR		42217
HPV31	E7	88	10	GIVCPNCSTR		42218
HPV31	E7	89	9	IVCPNCSTR		42219
HPV31	E7	54	9	IVTFCQCK		42220
HPV31	E7	67	11	LCVQSTQVDIR		42221
HPV31	E7	13	11	LDLQPEATDLH		42222
HPV31	E7	53	10	NIVTFCQCK		42223
HPV31	E7	44	9	QAEPTSNY		42224
HPV31	E7	70	8	QSTQVDIR		42225
HPV31	E7	2	10	RGETPTLQDY		42226

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	E7	56	11	TFCCQCKSTLR		42227
HPV31	E7	90	8	VCPCNSTR		42228
HPV31	E7	55	8	VTFCQCK		42229
HPV31	E7	52	11	YNIVTCCQCK		42230
HPV31	L1	347	11	AAIANSDTTFK		42231
HPV31	L1	102	9	ACVGLVGR		42232
HPV31	L1	386	8	ADIMTYIH		42233
HPV31	L1	458	10	ADLDQFPLGR		42234
HPV31	L1	458	11	ADLDQFPLGRK		42235
HPV31	L1	137	9	AGGPGTDNR		42236
HPV31	L1	37	11	AGSARLLTVGH		42237
HPV31	L1	473	8	AGYRARPK		42238
HPV31	L1	473	10	AGYRARPKFK		42239
HPV31	L1	348	10	AIANSDTTFK		42240
HPV31	L1	426	11	AITCQKTAPOK		42241
HPV31	L1	208	11	AMDFALQDTK		42242
HPV31	L1	350	8	ANSDTFK		42243
HPV31	L1	491	8	ASTTTPAK		42244
HPV31	L1	491	9	ASTTTPAKR		42245
HPV31	L1	491	10	ASTTTPAKRK		42246
HPV31	L1	491	11	ASTTTPAKRKK		42247
HPV31	L1	285	8	ATLANSTY		42248
HPV31	L1	226	10	CNSICKYPDY		42249
HPV31	L1	103	8	CVGLEVGR		42250
HPV31	L1	304	9	DAQIFNKPY		42251
HPV31	L1	185	8	DCPPLEK		42252
HPV31	L1	128	8	DDTENSNR		42253
HPV31	L1	128	9	DDTENSRY		42254
HPV31	L1	210	9	DFTALQDTK		42255
HPV31	L1	224	8	DICNSICK		42256
HPV31	L1	224	9	DICNSICKY		42257
HPV31	L1	459	9	DLQDFPLGR		42258
HPV31	L1	459	10	DLQDFPLGRK		42259
HPV31	L1	372	10	DLQFIFQLCK		42260
HPV31	L1	56	10	DNPKKIVVPK		42261
HPV31	L1	143	10	DNRECISMDY		42262
HPV31	L1	143	11	DNRECISMDYK		42263
HPV31	L1	129	8	DTENSRY		42264
HPV31	L1	245	8	DTLFFYL		42265
HPV31	L1	245	9	DTLFFYLRR		42266
HPV31	L1	88	11	DTSFYNPETQR		42267
HPV31	L1	353	10	DTTFKSSNFK		42268
HPV31	L1	146	8	ECISMDYK		42269
HPV31	L1	270	8	ESVPTDLY		42270
HPV31	L1	270	10	ESVPTDLYIK		42271
HPV31	L1	127	9	FDDTENSNR		42272

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L1	127	10	FDDTENSRY		42273
HPV31	L1	371	11	FDLQFIFQLCK		42274
HPV31	L1	84	9	FGPDTSFY		42275
HPV31	L1	469	8	FLLQAGYR		42276
HPV31	L1	469	10	FLLQAGYRAR		42277
HPV31	L1	308	9	FNKPYWMQR		42278
HPV31	L1	211	8	FTALQDTK		42279
HPV31	L1	257	8	FVRHFFNR		42280
HPV31	L1	421	11	FVTSQAITCQK		42281
HPV31	L1	331	9	FVTVDITR		42282
HPV31	L1	161	9	GCKPIGEH		42283
HPV31	L1	184	9	GDCPPLEK		42284
HPV31	L1	244	9	GDTLFFYLRL		42285
HPV31	L1	244	10	GDTLFFYLRR		42286
HPV31	L1	85	8	GFPDTSFY		42287
HPV31	L1	138	8	GGPGTDNR		42288
HPV31	L1	117	10	GISGHPLLNK		42289
HPV31	L1	68	8	GLQYRVFR		42290
HPV31	L1	38	10	GLQYRVFRVR		42291
HPV31	L1	413	8	GSARLLTVGH		42292
HPV31	L1	282	8	GSLEDTYR		42293
HPV31	L1	349	11	GSTATLANSTY		42294
HPV31	L1	229	9	IANSDDTFK		42295
HPV31	L1	225	9	ICKYPDYLK		42296
HPV31	L1	225	8	ICNSICKY		42297
HPV31	L1	225	11	ICNSICKYPDY		42298
HPV31	L1	307	10	IFNKPYWMQR		42299
HPV31	L1	118	9	ISGHPLLNK		42300
HPV31	L1	427	10	ITCQKTAPOK		42301
HPV31	L1	382	10	ITLSADIMTY		42302
HPV31	L1	61	11	IVPKVSGLQY		42303
HPV31	L1	443	11	KDYVFEVNLK		42304
HPV31	L1	126	10	KFDDTENSNR		42305
HPV31	L1	126	11	KFDDTENSRY		42306
HPV31	L1	83	10	KFGPDTSFY		42307
HPV31	L1	468	8	KFLQAGY		42308
HPV31	L1	468	9	KFLQAGYR		42309
HPV31	L1	468	11	KFLQAGYRAR		42310
HPV31	L1	381	11	KITLSADIMTY		42311
HPV31	L1	357	8	KSSNFKEY		42312
HPV31	L1	357	10	KSSNFKEYLR		42313
HPV31	L1	357	11	KSSNFKEYLRH		42314
HPV31	L1	431	8	KTAPQPK		42315
HPV31	L1	65	8	KVSGLOYR		42316
HPV31	L1	65	11	KVSGLOYRVR		42317
HPV31	L1	20	8	KVVSTDEY		42318

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L1	20	11	KVVSTDEYVTR		42319
HPV31	L1	223	9	LDICNSICK		42320
HPV31	L1	223	10	LDICNSICKY		42321
HPV31	L1	460	8	LDQFPLGR		42322
HPV31	L1	460	9	LDQFPLGRK		42323
HPV31	L1	330	10	LFVTVDVTR		42324
HPV31	L1	160	10	LGCKPPIGEH		42325
HPV31	L1	465	11	LGRKFLLQAGY		42326
HPV31	L1	114	8	LGVGISGII		42327
HPV31	L1	159	11	LLGCKPPIGEH		42328
HPV31	L1	470	9	LLQAGYRAR		42329
HPV31	L1	470	11	LLQAGYRARPK		42330
HPV31	L1	42	8	LLTVGHPY		42331
HPV31	L1	42	9	LLTVGHPY		42332
HPV31	L1	384	8	LSADIMTY		42333
HPV31	L1	384	10	LSADIMTYIH		42334
HPV31	L1	43	8	LTVGHPY		42335
HPV31	L1	209	10	MDFTALQDTK		42336
HPV31	L1	256	9	MFVRHFFNR		42337
HPV31	L1	300	11	MVTSDAQIFNK		42338
HPV31	L1	360	8	NFKEYLRH		42339
HPV31	L1	32	10	NIYYHAGSAR		42340
HPV31	L1	227	9	NSICKYPDY		42341
HPV31	L1	227	11	NSICKYPDYLK		42342
HPV31	L1	496	8	PAKRKKTK		42343
HPV31	L1	496	9	PAKRKKTKK		42344
HPV31	L1	233	11	PDYLMVVAEPPY		42345
HPV31	L1	183	10	PGDCPPELK		42346
HPV31	L1	165	8	PIGEHWGK		42347
HPV31	L1	222	10	PLDICNSICK		42348
HPV31	L1	222	11	PLDICNSICKY		42349
HPV31	L1	113	9	PLGVGHSKH		42350
HPV31	L1	489	10	PSASTTTPAK		42351
HPV31	L1	489	11	PSASTTTPAKR		42352
HPV31	L1	411	9	PSGSLEDY		42353
HPV31	L1	411	10	PSGSLEDYR		42354
HPV31	L1	17	11	PVSKVSTDEY		42355
HPV31	L1	472	9	QAGYRARPK		42356
HPV31	L1	472	11	QAGYRARPKFK		42357
HPV31	L1	374	8	QFIFQLCK		42358
HPV31	L1	306	11	QIFNKPYWMQR		42359
HPV31	L1	156	8	QLCLLGCK		42360
HPV31	L1	329	11	QLFVTVVDVTR		42361
HPV31	L1	255	10	QMFVRHFFNR		42362
HPV31	L1	154	10	QTQLCLLGCK		42363
HPV31	L1	476	10	RARPKFKAGK		42364

HPV31 L1 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540 544 548 552 556 560 564 568 572 576 580 584 588 592 596 600 604 608 612 616 620 624 628 632 636 640 644 648 652 656 660 664 668 672 676 680 684 688 692 696 700 704 708 712 716 720 724 728 732 736 740 744 748 752 756 760 764 768 772 776 780 784 788 792 796 800 804 808 812 816 820 824 828 832 836 840 844 848 852 856 860 864 868 872 876 880 884 888 892 896 900 904 908 912 916 920 924 928 932 936 940 944 948 952 956 960 964 968 972 976 980 984 988 992 996 1000 1004 1008 1012 1016 1020 1024 1028 1032 1036 1040 1044 1048 1052 1056 1060 1064 1068 1072 1076 1080 1084 1088 1092 1096 1100 1104 1108 1112 1116 1120 1124 1128 1132 1136 1140 1144 1148 1152 1156 1160 1164 1168 1172 1176 1180 1184 1188 1192 1196 1200 1204 1208 1212 1216 1220 1224 1228 1232 1236 1240 1244 1248 1252 1256 1260 1264 1268 1272 1276 1280 1284 1288 1292 1296 1300 1304 1308 1312 1316 1320 1324 1328 1332 1336 1340 1344 1348 1352 1356 1360 1364 1368 1372 1376 1380 1384 1388 1392 1396 1400 1404 1408 1412 1416 1420 1424 1428 1432 1436 1440 1444 1448 1452 1456 1460 1464 1468 1472 1476 1480 1484 1488 1492 1496 1500 1504 1508 1512 1516 1520 1524 1528 1532 1536 1540 1544 1548 1552 1556 1560 1564 1568 1572 1576 1580 1584 1588 1592 1596 1600 1604 1608 1612 1616 1620 1624 1628 1632 1636 1640 1644 1648 1652 1656 1660 1664 1668 1672 1676 1680 1684 1688 1692 1696 1700 1704 1708 1712 1716 1720 1724 1728 1732 1736 1740 1744 1748 1752 1756 1760 1764 1768 1772 1776 1780 1784 1788 1792 1796 1800 1804 1808 1812 1816 1820 1824 1828 1832 1836 1840 1844 1848 1852 1856 1860 1864 1868 1872 1876 1880 1884 1888 1892 1896 1900 1904 1908 1912 1916 1920 1924 1928 1932 1936 1940 1944 1948 1952 1956 1960 1964 1968 1972 1976 1980 1984 1988 1992 1996 2000 2004 2008 2012 2016 2020 2024 2028 2032 2036 2040 2044 2048 2052 2056 2060 2064 2068 2072 2076 2080 2084 2088 2092 2096 2100 2104 2108 2112 2116 2120 2124 2128 2132 2136 2140 2144 2148 2152 2156 2160 2164 2168 2172 2176 2180 2184 2188 2192 2196 2200 2204 2208 2212 2216 2220 2224 2228 2232 2236 2240 2244 2248 2252 2256 2260 2264 2268 2272 2276 2280 2284 2288 2292 2296 2300 2304 2308 2312 2316 2320 2324 2328 2332 2336 2340 2344 2348 2352 2356 2360 2364 2368 2372 2376 2380 2384 2388 2392 2396 2400 2404 2408 2412 2416 2420 2424 2428 2432 2436 2440 2444 2448 2452 2456 2460 2464 2468 2472 2476 2480 2484 2488 2492 2496 2500 2504 2508 2512 2516 2520 2524 2528 2532 2536 2540 2544 2548 2552 2556 2560 2564 2568 2572 2576 2580 2584 2588 2592 2596 2600 2604 2608 2612 2616 2620 2624 2628 2632 2636 2640 2644 2648 2652 2656 2660 2664 2668 2672 2676 2680 2684 2688 2692 2696 2700 2704 2708 2712 2716 2720 2724 2728 2732 2736 2740 2744 2748 2752 2756 2760 2764 2768 2772 2776 2780 2784 2788 2792 2796 2800 2804 2808 2812 2816 2820 2824 2828 2832 2836 2840 2844 2848 2852 2856 2860 2864 2868 2872 2876 2880 2884 2888 2892 2896 2900 2904 2908 2912 2916 2920 2924 2928 2932 2936 2940 2944 2948 2952 2956 2960 2964 2968 2972 2976 2980 2984 2988 2992 2996 3000 3004 3008 3012 3016 3020 3024 3028 3032 3036 3040 3044 3048 3052 3056 3060 3064 3068 3072 3076 3080 3084 3088 3092 3096 3100 3104 3108 3112 3116 3120 3124 3128 3132 3136 3140 3144 3148 3152 3156 3160 3164 3168 3172 3176 3180 3184 3188 3192 3196 3200 3204 3208 3212 3216 3220 3224 3228 3232 3236 3240 3244 3248 3252 3256 3260 3264 3268 3272 3276 3280 3284 3288 3292 3296 3300 3304 3308 3312 3316 3320 3324 3328 3332 3336 3340 3344 3348 3352 3356 3360 3364 3368 3372 3376 3380 3384 3388 3392 3396 3400 3404 3408 3412 3416 3420 3424 3428 3432 3436 3440 3444 3448 3452 3456 3460 3464 3468 3472 3476 3480 3484 3488 3492 3496 3500 3504 3508 3512 3516 3520 3524 3528 3532 3536 3540 3544 3548 3552 3556 3560 3564 3568 3572 3576 3580 3584 3588 3592 3596 3600 3604 3608 3612 3616 3620 3624 3628 3632 3636 3640 3644 3648 3652 3656 3660 3664 3668 3672 3676 3680 3684 3688 3692 3696 3700 3704 3708 3712 3716 3720 3724 3728 3732 3736 3740 3744 3748 3752 3756 3760 3764 3768 3772 3776 3780 3784 3788 3792 3796 3800 3804 3808 3812 3816 3820 3824 3828 3832 3836 3840 3844 3848 3852 3856 3860 3864 3868 3872 3876 3880 3884 3888 3892 3896 3900 3904 3908 3912 3916 3920 3924 3928 3932 3936 3940 3944 3948 3952 3956 3960 3964 3968 3972 3976 3980 3984 3988 3992 3996 4000 4004 4008 4012 4016 4020 4024 4028 4032 4036 4040 4044 4048 4052 4056 4060 4064 4068 4072 4076 4080 4084 4088 4092 4096 4100 4104 4108 4112 4116 4120 4124 4128 4132 4136 4140 4144 4148 4152 4156 4160 4164 4168 4172 4176 4180 4184 4188 4192 4196 4200 4204 4208 4212 4216 4220 4224 4228 4232 4236 4240 4244 4248 4252 4256 4260 4264 4268 4272 4276 4280 4284 4288 4292 4296 4300 4304 4308 4312 4316 4320 4324 4328 4332 4336 4340 4344 4348 4352 4356 4360 4364 4368 4372 4376 4380 4384 4388 4392 4396 4400 4404 4408 4412 4416 4420 4424 4428 4432 4436 4440 4444 4448 4452 4456 4460 4464 4468 4472 4476 4480 4484 4488 4492 4496 4500 4504 4508 4512 4516 4520 4524 4528 4532 4536 4540 4544 4548 4552 4556 4560 4564 4568 4572 4576 4580 4584 4588 4592 4596 4600 4604 4608 4612 4616 4620 4624 4628 4632 4636 4640 4644 4648 4652 4656 4660 4664 4668 4672 4676 4680 4684 4688 4692 4696 4700 4704 4708 4712 4716 4720 4724 4728 4732 4736 4740 4744 4748 4752 4756 4760 4764 4768 4772 4776 4780 4784 4788 4792 4796 4800 4804 4808 4812 4816 4820 4824 4828 4832 4836 4840 4844 4848 4852 4856 4860 4864 4868 4872 4876 4880 4884 4888 4892 4896 4900 4904 4908 4912 4916 4920 4924 4928 4932 4936 4940 4944 4948 4952 4956 4960 4964 4968 4972 4976 4980 4984 4988 4992 4996 5000 5004 5008 5012 5016 5020 5024 5028 5032 5036 5040 5044 5048 5052 5056 5060 5064 5068 5072 5076 5080 5084 5088 5092 5096 5100 5104 5108 5112 5116 5120 5124 5128 5132 5136 5140 5144 5148 5152 5156 5160 5164 5168 5172 5176 5180 5184 5188 5192 5196 5200 5204 5208 5212 5216 5220 5224 5228 5232 5236 5240 5244 5248 5252 5256 5260 5264 5268 5272 5276 5280 5284 5288 5292 5296 5300 5304 5308 5312 5316 5320 5324 5328 5332 5336 5340 5344 5348 5352 5356 5360 5364 5368 5372 5376 5380 5384 5388 5392 5396 5400 5404 5408 5412 5416 5420 5424 5428 5432 5436 5440 5444 5448 5452 5456 5460 5464 5468 5472 5476 5480 5484 5488 5492 5496 5500 5504 5508 5512 5516 5520 5524 5528 5532 5536 5540 5544 5548 5552 5556 5560 5564 5568 5572 5576 5580 5584 5588 5592 5596 5600 5604 5608 5612 5616 5620 5624 5628 5632 5636 5640 5644 5648 5652 5656 5660 5664 5668 5672 5676 5680 5684 5688 5692 5696 5700 5704 5708 5712 5716 5720 5724 5728 5732 5736 5740 5744 5748 5752 5756 5760 5764 5768 5772 5776 5780 5784 5788 5792 5796 5800 5804 5808 5812 5816 5820 5824 5828 5832 5836 5840 5844 5848 5852 5856 5860 5864 5868 5872 5876 5880 5884 5888 5892 5896 5900 5904 5908 5912 5916 5920 5924 5928 5932 5936 5940 5944 5948 5952 5956 5960 5964 5968 5972 5976 5980 5984 5988 5992 5996 6000 6004 6008 6012 6016 6020 6024 6028 6032 6036 6040 6044 6048 6052 6056 6060 6064 6068 6072 6076 6080 6084 6088 6092 6096 6100 6104 6108 6112 6116 6120 6124 6128 6132 6136 6140 6144 6148 6152 6156 6160 6164 6168 6172 6176 6180 6184 6188 6192 6196 6200 6204 6208 6212 6216 6220 6224 6228 6232 6236 6240 6244 6248 6252 6256 6260 6264 6268 6272 6276 6280 6284 6288 6292 6296 6300 6304 6308 6312 6316 6320 6324 6328 6332 6336 6340 6344 6348 6352 6356 6360 6364 6368 6372 6376 6380 6384 6388 6392 6396 6400 6404 6408 6412 6416 6420 6424 6428 6432 6436 6440 6444 6448 6452 6456 6460 6464 6468 6472 6476 6480 6484 6488 6492 6496 6500 6504 6508 6512 6516 6520 6524 6528 6532 6536 6540 6544 6548 6552 6556 6560 6564 6568 6572 6576 6580 6584 6588 6592 6596 6600 6604 6608 6612 6616 6620 6624 6628 6632 6636 6640 6644 6648 6652 6656 6660 6664 6668 6672 6676 6680 6684 6688 6692 6696 6700 6704 6708 6712 6716 6720 6724 6728 6732 6736 6740 6744 6748 6752 6756 6760 6764 6768 6772 6776 6780 6784 6788 6792 6796 6800 6804 6808 6812 6816 6820 6824 6828 6832 6836 6840 6844 6848 6852 6856 6860 6864 6868 6872 6876 6880 6884 6888 6892 6896 6900 6904 6908 6912 6916 6920 6924 6928 6932 6936 6940 6944 6948 6952 6956 6960 6964 6968 6972 6976 6980 6984 6988 6992 6996 7000 7004 7008 7012 7016 7020 7024 7028 7032 7036 7040 7044 7048 7052 7056 7060 7064 7068 7072 7076 7080 7084 7088 7092 7096 7100 7104 7108 7112 7116 7120 7124 7128 7132 7136 7140 7144 7148 7152 7156 7160 7164 7168 7172 7176 7180 7184 7188 7192 7196 7200 7204 7208 7212 7216 7220 7224 7228 7232 7236 7240 7244 7248 7252 7256 7260 7264 7268 7272 7276 7280 7284 7288 7292 7296 7300 7304 7308 7312 7316 7320 7324 7328 7332 7336 7340 7344 7348 7352 7356 7360 7364 7368 7372 7376 7380 7384 7388 7392 7396 7400 7404 7408 7412 7416 7420 7424 7428 7432 7436 7440 7444 7448 7452 7456 7460 7464 7468 7472 7476 7480 7484 7488 7492 7496 7500 7504 7508 7512 7516 7520 7524 7528 7532 7536 7540 7544 7548 7552 7556 7560 7564 7568 7572 7576 7580 7584 7588 7592 7596 7600 7604 7608 7612 7616 7620 7624 7628 7632 7636 7640 7644 7648 7652 7656 7660 7664 7668 7672 7676 7680 7684 7688 7692 7696 7700 7704 7708 7712 7716 7720 7724 7728 7732 7736 7740 7744 7748 7752 7756 7760 7764 7768 7772 7776 7780 7784 7788 7792 7796 7800 7804 7808 7812 7816 7820 7824 7828 7832 7836 7840 7844 7848 7852 7856 7860 7864 7868 7872 7876 7880 7884 7888 7892 7896 7900 7904 7908 7912 7916 7920 7924 7928 7932 7936 7940 7944 7948 7952 7956 7960 7964 7968 7972 7976 7980 7984 7988 7992 7996 8000 8004 8008 8012 8016 8020 8024 8028 8032 8036 8040 8044 8048 8052 8056 8060 8064 8068 8072 8076 8080 8084 8088 8092 8096 8100 8104 8108 8112 8116 8120 8124 8128 8132 8136 8140 8144 8148 8152 8156 8160 8164 8168 8172 8176 8180 8184 8188 8192 8196 8200 8204 8208 8212 8216 8220 8224 8228 8232 8236 8240 8244 8248 8252 8256 8260 8264 8268 8272 8276 8280 8284 8288 8292 8296 8300 8304 8308 8312 8316 8320 8324 8328 8332 8336 8340 8344 8348 8352 8356 8360 8364 8368 8372 8376 8380 8384 8388 8392 8396 8400 8404 8408 8412 8416 8420 8424 8428 8432 8436 8440 8444 8448 8452 8456 8460 8464 8468 8472 8476 8480 8484 8488 8492 8496 8500 8504 8508 8512 8516 8520 8524 8528 8532 8536 8540 8544 8548 8552 8556 8560 8564 8568 8572 8576 8580 8584 8588 8592 8596 8600 8604 8608 8612 8616 8620 8624 8628 8632 8636 8640 8644 8648 8652 8656 8660 8664 8668 8672 8676 8680 8684 8688 8692 8696 8700 8704 8708 8712 8716 8720 8724 8728 8732 8736 8740 8744 8748 8752 8756 8760 8764 8768 8772 8776 8780 8784 8788 8792 8796 8800 8804 8808 8812 8816 8820 8824 8828 8832 8836 8840 8844 8848 8852 8856 8860 8864 8868 8872 8876 8880 8884 8888 8892 8896 8900 8904 8908 8912 8916 8920 8924 8928 8932 8936 8940 8944 8948 8952 8956 8960 8964 8968 8972 8976 8980 8984 8988 8992 8996 9000 9004 9008 9012 9016 9020 9024 9028 9032 9036 9040 9044 9048 9052 9056 9060 9064 9068 9072 9076 9080 9084 9088 9092 9096 9100 9104 9108 9112 9116 9120 9124 9128 9132 9136 9140 9144 9148 9152 9156 9160 9164 9168 9172 9176 9180 9184 9188 9192 9196 9200 9204 9208 9212 9216 9220 9224 9228 9232 9236 9240 9244 9248 9252 9256 9260 9264 9268 9272 9276 9280 9284 9288 9292 9296 9300 9304 9308 9312 9316 9320 9324 9328 9332 9336 9340 9344 9348 9352 9356 9360 9364 9368 9372 9376 9380 9384 9388 9392 9396 9400 9404 9408 9412 9416 9420 9424 9428 9432 9436 9440 9444 9448 9452 9456 9460 9464 9468 9472 9476 9480 9484 9488 9492 9496 9500 9504 9508 9512 9516 9520 9524 9528 9532 9536 9540 9544 9548 9552 9556 9560 9564 9568 9572 9576 9580 9584 9588 9592 9596 9600 9604 9608 9612 9616 9620 9624 9628 9632 9636 9640 9644 9648 9652 9656 9660 9664 9668 9672 9676 9680 9684 9688 9692 9696 9700 9704 9708 9712 9716 9720 9724 9728 9732 9736 9740 9744 9748 9752 9756 9760 9764 9768 9772 9776 9780 9784 9788 9792 9796 9800 9804 9808 9812 9816 9820 9824 9828 9832 9836 9840 9844 9848 9852 9856 9860 9864 9868 9872 9876 9880 9884 9888 9892 9896 9900 9904 9908 9912 9916 9920 9924 9928 9932 9936 9940 9944 9948 9952 9956 9960 9964 9968 9972 9976 9980 9984 9988 9992 9996 10000

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L1	476	11	RARPKFKAGKR		42365
HPV31	L1	41	9	RLLTVGHPY		42366
HPV31	L1	41	10	RLLTVGHPYY		42367
HPV31	L1	75	9	RVRLDPNK		42368
HPV31	L1	385	9	SADIMTYIH		42369
HPV31	L1	457	11	SADLDQFPLGR		42370
HPV31	L1	39	9	SARLLTVGH		42371
HPV31	L1	39	11	SARLLTVGHPY		42372
HPV31	L1	490	9	SASTTTPAK		42373
HPV31	L1	490	10	SASTTTPAKR		42374
HPV31	L1	490	11	SASTTTPAKRK		42375
HPV31	L1	303	8	SDAQIFNK		42376
HPV31	L1	303	10	SDAQIFNKPY		42377
HPV31	L1	55	11	SDNPKKIVVPK		42378
HPV31	L1	352	11	SDTTFKSSNFK		42379
HPV31	L1	90	9	SFYNPETQR		42380
HPV31	L1	119	8	SGHPLLNK		42381
HPV31	L1	67	9	SGLQYRVFR		42382
HPV31	L1	67	11	SGLQYRVFRVR		42383
HPV31	L1	412	8	SGSLEDTY		42384
HPV31	L1	412	9	SGSLEDTYR		42385
HPV31	L1	228	8	SICKYDPY		42386
HPV31	L1	228	10	SICKYDPDLK		42387
HPV31	L1	51	9	SIPKSDNPK		42388
HPV31	L1	51	10	SIPKSDNPKK		42389
HPV31	L1	2	11	SLWRPSEATVY		42390
HPV31	L1	359	8	SNFKEYLR		42391
HPV31	L1	359	9	SNFKEYLRH		42392
HPV31	L1	358	9	SSNFKEYLR		42393
HPV31	L1	358	10	SSNFKEYLRH		42394
HPV31	L1	283	10	STATLANSTY		42395
HPV31	L1	23	8	STDEYVTR		42396
HPV31	L1	492	8	STTTPAKR		42397
HPV31	L1	492	9	STTTPAKRK		42398
HPV31	L1	492	10	STTTPAKRKK		42399
HPV31	L1	271	9	SVPTDLYIK		42400
HPV31	L1	284	9	TATLANSTY		42401
HPV31	L1	428	9	TCQKTAPQK		42402
HPV31	L1	428	11	TCQKTAPQKPK		42403
HPV31	L1	24	11	TDEYVTRTNIY		42404
HPV31	L1	142	11	TDNRECISMDY		42405
HPV31	L1	355	8	TFKSSNEK		42406
HPV31	L1	355	10	TFKSSNFEY		42407
HPV31	L1	246	8	TLFFYLRR		42408
HPV31	L1	383	9	TLSADIMTY		42409
HPV31	L1	383	11	TLSADIMTYIH		42410

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L1	31	11	TNIYHAGSAR		42411
HPV31	L1	302	9	TSDAQIFNK		42412
HPV31	L1	302	11	TSDAQIFNKPY		42413
HPV31	L1	89	10	TSFYNPETQR		42414
HPV31	L1	423	9	TSQAITCQK		42415
HPV31	L1	354	9	TTFKSSNEFK		42416
HPV31	L1	354	11	TTFKSSNEKEY		42417
HPV31	L1	494	8	TTPAKRKK		42418
HPV31	L1	494	10	TTPAKRKKTK		42419
HPV31	L1	494	11	TTPAKRKKTKK		42420
HPV31	L1	493	8	TTPAKRKK		42421
HPV31	L1	493	9	TTPAKRKKK		42422
HPV31	L1	493	11	TTPAKRKKTK		42423
HPV31	L1	267	11	TVGESVPTDLY		42424
HPV31	L1	44	11	TVGHPYYSIPK		42425
HPV31	L1	10	11	TVYLPVPVPSK		42426
HPV31	L1	73	11	VFRVRLPDPNK		42427
HPV31	L1	446	8	VFEVNLK		42428
HPV31	L1	446	10	VFEVNLKEK		42429
HPV31	L1	268	10	VGESVPTDLY		42430
HPV31	L1	45	10	VGHPYYSIPK		42431
HPV31	L1	116	11	VGISGHPLLNK		42432
HPV31	L1	66	10	VSLQYRVFR		42433
HPV31	L1	18	10	VSKVVSSTDEY		42434
HPV31	L1	22	9	VSTDEYVTR		42435
HPV31	L1	28	8	VTRTNIYY		42436
HPV31	L1	28	9	VTRTNIYYH		42437
HPV31	L1	301	10	VTSDAQIFNK		42438
HPV31	L1	422	10	VTSQAITCQK		42439
HPV31	L1	332	8	VTVVDITR		42440
HPV31	L1	62	10	VVPKVSGLQY		42441
HPV31	L1	62	11	VVPKVSGLQYR		42442
HPV31	L1	21	10	VVSTDEYVTR		42443
HPV31	L1	101	10	WACVGLEVGR		42444
HPV31	L1	313	8	WMQRAQGH		42445
HPV31	L1	136	10	YAGGPGTDNR		42446
HPV31	L1	243	8	YGDTLFFY		42447
HPV31	L1	243	10	YGDTLFFYLR		42448
HPV31	L1	243	11	YGDTLFFYLRR		42449
HPV31	L1	235	9	YMKMVAEPY		42450
HPV31	L1	12	9	YLPVPVPSK		42451
HPV31	L1	250	10	YLRREQMFVR		42452
HPV31	L1	250	11	YLRREQMFVRH		42453
HPV31	L1	50	10	YSIPKSDNPK		42454
HPV31	L1	50	11	YSIPKSDNPKK		42455
HPV31	L1	445	9	YVFEVNLK		42456

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L1	445	11	YVFEVNLKEK		42457
HPV31	L1	27	8	YVTRNIY		42458
HPV31	L1	27	9	YVTRNIYY		42459
HPV31	L1	27	10	YVTRNIYYH		42460
HPV31	L2	25	11	AGTCPSDVIK		42461
HPV31	L2	143	11	AILDVTSVSTH		42462
HPV31	L2	281	10	ALHRPALTSR		42463
HPV31	L2	281	11	ALHRPALTSRR		42464
HPV31	L2	286	10	ALTSRRNTVR		42465
HPV31	L2	286	11	ALTSRRNTVRY		42466
HPV31	L2	13	11	ASATQLYQTK		42467
HPV31	L2	311	8	ATIGARVH		42468
HPV31	L2	311	9	ATIGARVHY		42469
HPV31	L2	311	10	ATIGARVHYH		42470
HPV31	L2	311	11	ATIGARVHYHY		42471
HPV31	L2	15	9	ATQLYQTK		42472
HPV31	L2	376	11	AVQTSASVSAY		42473
HPV31	L2	275	9	DFLDIALH		42474
HPV31	L2	275	10	DFLDIALHR		42475
HPV31	L2	360	10	DFTVDTPATH		42476
HPV31	L2	438	8	DFYLHPSY		42477
HPV31	L2	438	9	DFYLHPSYY		42478
HPV31	L2	435	8	DGGDFYLH		42479
HPV31	L2	435	11	DGGDFYLHPSY		42480
HPV31	L2	116	10	DVGAPAPIPH		42481
HPV31	L2	31	8	DVIPKIEH		42482
HPV31	L2	146	8	DVTSVSTH		42483
HPV31	L2	259	10	ESLYFSNTSH		42484
HPV31	L2	253	10	ETVNAEESLY		42485
HPV31	L2	276	8	FLDIALH		42486
HPV31	L2	276	9	FLDIALHR		42487
HPV31	L2	237	11	FLSAPKQLITY		42488
HPV31	L2	404	10	FSGPDVPIEH		42489
HPV31	L2	361	9	FTVDTPATH		42490
HPV31	L2	433	8	FVDGGDFY		42491
HPV31	L2	433	10	FVDGGDFYLH		42492
HPV31	L2	118	8	GAPAPIH		42493
HPV31	L2	314	8	GARVHYH		42494
HPV31	L2	310	9	GATIGARVH		42495
HPV31	L2	310	10	GATIGARVHY		42496
HPV31	L2	310	11	GATIGARVHYH		42497
HPV31	L2	437	9	GDFYLHPSY		42498
HPV31	L2	437	10	GDFYLHPSYY		42499
HPV31	L2	436	10	GGDFYLHPSY		42500
HPV31	L2	436	11	GGDFYLHPSYY		42501
HPV31	L2	59	11	GIGSGGTGGR		42502

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L2	221	11	GLYSKATQQVK		42503
HPV31	L2	300	9	GNKQTLRTR		42504
HPV31	L2	61	9	GSGSTGGR		42505
HPV31	L2	63	10	GSSTGGRTGY		42506
HPV31	L2	26	10	GTCPSDVIPK		42507
HPV31	L2	65	8	GTGGRTGY		42508
HPV31	L2	213	11	GVRPRLGLY		42509
HPV31	L2	38	10	HTTIADQILR		42510
HPV31	L2	38	11	HTTIADQILRY		42511
HPV31	L2	41	8	IADQILRY		42512
HPV31	L2	280	11	IALHRLPALTSR		42513
HPV31	L2	233	10	IDPTFLSAPK		42514
HPV31	L2	403	11	IFSGPDVPIEH		42515
HPV31	L2	432	9	IFVDGGDFY		42516
HPV31	L2	432	11	IFVDGGDFYLI		42517
HPV31	L2	313	8	IGARVHY		42518
HPV31	L2	313	9	IGARVHYYY		42519
HPV31	L2	60	10	IGSGSGTGGR		42520
HPV31	L2	144	10	ILDVTSVSTH		42521
HPV31	L2	205	11	ITSSTPIGVR		42522
HPV31	L2	245	8	ITYENPAY		42523
HPV31	L2	277	8	LDIHALHR		42524
HPV31	L2	145	9	LDVTSVSTH		42525
HPV31	L2	299	8	LGKQTLR		42526
HPV31	L2	299	10	LGKQTLRTR		42527
HPV31	L2	244	9	LITYENPAY		42528
HPV31	L2	176	11	LLSSSSISTH		42529
HPV31	L2	177	10	LLSSSSISTH		42530
HPV31	L2	348	9	LNDGLYDIY		42531
HPV31	L2	238	10	LSAPKQLITY		42532
HPV31	L2	178	9	LSSSSISTH		42533
HPV31	L2	178	11	LSSSSISTHNY		42534
HPV31	L2	287	9	LTSRRNTVR		42535
HPV31	L2	287	10	LTSRRNTVRY		42536
HPV31	L2	447	8	MLKRRRKR		42537
HPV31	L2	447	11	MLKRRRKRVS		42538
HPV31	L2	349	8	NDGLYDIY		42539
HPV31	L2	292	11	NTVRSRLGNK		42540
HPV31	L2	285	11	PALTSRRNTVR		42541
HPV31	L2	217	9	PARGLYSK		42542
HPV31	L2	274	10	PDFLDIALH		42543
HPV31	L2	274	11	PDFLDIALHR		42544
HPV31	L2	212	8	PGVRRPAR		42545
HPV31	L2	210	10	PIPGVRRPAR		42546
HPV31	L2	29	10	PSDVIPKIEH		42547
HPV31	L2	443	8	PSYYMLKR		42548

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L2	443	9	PSYYMLKRR		42549
HPV31	L2	443	10	PSYYMLKRRR		42550
HPV31	L2	443	11	PSYYMLKRRRK		42551
HPV31	L2	235	8	PTFLSAPK		42552
HPV31	L2	167	9	PTPAETSGH		42553
HPV31	L2	243	10	QLITYENPAY		42554
HPV31	L2	378	9	QSTSAVSAY		42555
HPV31	L2	12	8	RASATQLY		42556
HPV31	L2	298	9	RLGNKQTLR		42557
HPV31	L2	298	11	RLGNKQTLRTR		42558
HPV31	L2	291	8	RNTVRSR		42559
HPV31	L2	308	9	RSGATIGAR		42560
HPV31	L2	308	11	RSGATIGARVH		42561
HPV31	L2	2	8	RSKRSTKR		42562
HPV31	L2	2	10	RSKRSTKRK		42563
HPV31	L2	2	11	RSKRSTKRTR		42564
HPV31	L2	5	8	RSTKRTR		42565
HPV31	L2	69	10	RTGYVPLSTR		42566
HPV31	L2	9	11	RTKRASATQLY		42567
HPV31	L2	306	11	RTRSGATIGAR		42568
HPV31	L2	239	9	SAPQLITY		42569
HPV31	L2	14	10	SATQLYQTCK		42570
HPV31	L2	30	9	SDVIPKIEH		42571
HPV31	L2	309	8	SGATIGAR		42572
HPV31	L2	309	10	SGATIGARVH		42573
HPV31	L2	309	11	SGATIGARVHY		42574
HPV31	L2	405	9	SGPDVPIEH		42575
HPV31	L2	62	8	SCSGTGGR		42576
HPV31	L2	62	11	SCSGTGGRRTGY		42577
HPV31	L2	64	9	SGTGGRRTGY		42578
HPV31	L2	431	10	SIFVDGGDFY		42579
HPV31	L2	260	9	SLYFSNTSH		42580
HPV31	L2	181	8	SSISTHNY		42581
HPV31	L2	180	9	SSSISTHNY		42582
HPV31	L2	179	8	SSSISTH		42583
HPV31	L2	179	10	SSSISTHNY		42584
HPV31	L2	207	9	SSTPIPGVR		42585
HPV31	L2	207	10	SSTPIPGVRR		42586
HPV31	L2	346	8	STLNDGLY		42587
HPV31	L2	346	11	STLNDGLYDIY		42588
HPV31	L2	208	8	STPIPGVR		42589
HPV31	L2	208	9	STPIPGVRR		42590
HPV31	L2	379	8	STSAVSAY		42591
HPV31	L2	80	11	STVSEASIPR		42592
HPV31	L2	27	9	TCFSDVIPK		42593
HPV31	L2	359	11	TDFTVDTPATI		42594

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV31	L2	70	9	TGYVPLSTR		42595
HPV31	L2	40	8	TIADQILR		42596
HPV31	L2	40	9	TIADQILRY		42597
HPV31	L2	312	8	TIGARVHY		42598
HPV31	L2	312	9	TIGARVHIYY		42599
HPV31	L2	312	10	TIGARVHIYY		42600
HPV31	L2	347	10	TLNDGLYDIY		42601
HPV31	L2	288	8	TSRRNTVR		42602
HPV31	L2	288	9	TSRRNTVRY		42603
HPV31	L2	288	11	TSRRNTVRYSR		42604
HPV31	L2	206	10	TSSTPIPGVR		42605
HPV31	L2	206	11	TSSTPIPGVRR		42606
HPV31	L2	345	9	TSTLNDGLY		42607
HPV31	L2	39	9	TTIADQILR		42608
HPV31	L2	39	10	TTIADQILRY		42609
HPV31	L2	344	10	TTSTLNDGLY		42610
HPV31	L2	343	11	TTSTLNDGLY		42611
HPV31	L2	362	8	TVDTPATH		42612
HPV31	L2	254	9	TVNAEESLY		42613
HPV31	L2	293	10	TVYRSLGNK		42614
HPV31	L2	81	10	TVSEASIPR		42615
HPV31	L2	434	9	VDGGDFYLH		42616
HPV31	L2	115	11	VDVGAPAPIPH		42617
HPV31	L2	117	9	VGAPAPIPH		42618
HPV31	L2	232	11	VIDPTFLSAPK		42619
HPV31	L2	255	8	VNAEESLY		42620
HPV31	L2	82	9	VSEASIPR		42621
HPV31	L2	430	11	VSIFVDGGDFY		42622
HPV31	L2	440	10	YLHPSYYMLK		42623
HPV31	L2	440	11	YLHPSYYMLKR		42624
HPV31	L2	446	8	YMLKRRRK		42625
HPV31	L2	446	9	YMLKRRRKR		42626
HPV31	L2	223	9	YSKATQQVK		42627
HPV31	L2	296	11	YSRLGNKQTLR		42628
HPV33	E1	96	8	AAEDVVDR		42629
HPV33	E1	383	11	AAFLKNSQAK		42630
HPV33	E1	104	11	AANPCRTSINK		42631
HPV33	E1	452	11	AFKKFLKGIPK		42632
HPV33	E1	448	8	AFLGAFKK		42633
HPV33	E1	448	11	AFLGAFKKFLK		42634
HPV33	E1	384	10	AFLKNSQAK		42635
HPV33	E1	635	9	AGENTRSLR		42636
HPV33	E1	563	9	AGTDSRWPY		42637
HPV33	E1	563	11	AGTDSRWPYLH		42638
HPV33	E1	596	8	AINDENWK		42639
HPV33	E1	198	8	ANILYKFK		42640

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E1	198	11	ANILYKFKEAY		42641
HPV33	E1	105	10	ANPCRTSINK		42642
HPV33	E1	81	8	AVCALKRK		42643
HPV33	E1	398	8	CGIMCRHY		42644
HPV33	E1	398	9	CGIMCRIYK		42645
HPV33	E1	398	10	CGIMCRHYKK		42646
HPV33	E1	469	8	CGPANTGK		42647
HPV33	E1	469	10	CGPANTGKSY		42648
HPV33	E1	297	8	CMVIEPPK		42649
HPV33	E1	297	10	CMVIEPPKLR		42650
HPV33	E1	633	8	CSAGENTR		42651
HPV33	E1	633	11	CSAGENTRSLR		42652
HPV33	E1	276	10	CSKNRLTVAK		42653
HPV33	E1	226	9	CTDWCTGY		42654
HPV33	E1	490	9	CVISCVNSK		42655
HPV33	E1	490	11	CVISCVNSKSH		42656
HPV33	E1	397	8	DCGIMCRH		42657
HPV33	E1	397	9	DCGIMCRHY		42658
HPV33	E1	397	10	DCGIMCRHYK		42659
HPV33	E1	397	11	DCGIMCRHYKK		42660
HPV33	E1	77	10	DDLNAVCAK		42661
HPV33	E1	77	11	DDLNAVCAKLR		42662
HPV33	E1	364	8	DDSDIAYY		42663
HPV33	E1	364	9	DDSDIAYY		42664
HPV33	E1	515	10	DDVTPISWTY		42665
HPV33	E1	534	10	DGNEISIDVK		42666
HPV33	E1	534	11	DGNEISIDVKH		42667
HPV33	E1	614	8	DLIEEDK		42668
HPV33	E1	614	11	DLIEEDKENH		42669
HPV33	E1	78	9	DLNAVCAK		42670
HPV33	E1	78	10	DLNAVCAKLR		42671
HPV33	E1	78	11	DLNAVCAKLRK		42672
HPV33	E1	349	10	DLSEMVQWAY		42673
HPV33	E1	365	8	DSDIAYY		42674
HPV33	E1	377	11	DSNSNAAFLK		42675
HPV33	E1	566	8	DSRWPLYH		42676
HPV33	E1	566	10	DSRWPLYHSR		42677
HPV33	E1	541	11	DVKIIRALVQLK		42678
HPV33	E1	516	9	DVTPISWTY		42679
HPV33	E1	99	11	DVVDRAANPCR		42680
HPV33	E1	117	8	ECTYRKRR		42681
HPV33	E1	76	11	EDDLNAVCAK		42682
HPV33	E1	445	10	EFTAFLGAFK		42683
HPV33	E1	445	11	EFTAFLGAFKK		42684
HPV33	E1	537	8	EISIDVKH		42685
HPV33	E1	537	9	EISIDVKHR		42686

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E1	361	10	ELTDDSDIAY		42687
HPV33	E1	361	11	ELTDDSDIAYY		42688
HPV33	E1	214	10	ELVRPFKSDK		42689
HPV33	E1	622	11	ENHGGNISTFK		42690
HPV33	E1	600	9	ENWKSFFSR		42691
HPV33	E1	242	8	ESLKVLIK		42692
HPV33	E1	242	10	ESLKVLIKQH		42693
HPV33	E1	295	10	ETCMVIEPPK		42694
HPV33	E1	19	8	EVEAVIER		42695
HPV33	E1	19	9	EVEAVIERR		42696
HPV33	E1	587	9	FDENGNPVY		42697
HPV33	E1	348	11	FDLSEMVQWAY		42698
HPV33	E1	605	8	HFRTWCK		42699
HPV33	E1	479	10	FGMSLIQFLK		42700
HPV33	E1	449	10	FLGAFKKFLK		42701
HPV33	E1	456	8	FLKGIPKK		42702
HPV33	E1	385	9	FLKSNSQAK		42703
HPV33	E1	212	9	FMELVRPFK		42704
HPV33	E1	446	9	FTAFLGAFK		42705
HPV33	E1	446	10	FTAFLGAFKK		42706
HPV33	E1	451	8	GAFKKFLK		42707
HPV33	E1	489	10	GCVISCVNSK		42708
HPV33	E1	625	8	GGNISTFK		42709
HPV33	E1	265	9	GIILLIR	0.0002	42710
HPV33	E1	265	11	GIILLIRFR		42711
HPV33	E1	399	8	GIMCRHYK		42712
HPV33	E1	399	9	GIMCRHYKK		42713
HPV33	E1	209	9	GISFMELVR		42714
HPV33	E1	235	11	GISPSVAESLK		42715
HPV33	E1	480	9	GMSLIQFLK		42716
HPV33	E1	535	9	GNEISIDVK		42717
HPV33	E1	535	10	GNEISIDVKH		42718
HPV33	E1	535	11	GNEISIDVKHR		42719
HPV33	E1	430	11	GNWRPIVQLLR		42720
HPV33	E1	564	8	GTDSRWPY		42721
HPV33	E1	564	10	GTDSRWPYLH		42722
HPV33	E1	327	9	GTPPEWIDR		42723
HPV33	E1	500	11	HFWLQPLSDAK		42724
HPV33	E1	624	9	HGGNISTFK		42725
HPV33	E1	256	9	ILQCLTCDR		42726
HPV33	E1	573	10	IISRLTVFEFK		42727
HPV33	E1	192	11	HSSNTKANILY		42728
HPV33	E1	468	9	ICGPANTGK		42729
HPV33	E1	468	11	ICGPANTGKSY		42730
HPV33	E1	514	11	IDDVTPISWTY		42731
HPV33	E1	125	9	IDLEDSDGY		42732

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E1	333	9	IDRLTVLQH		42733
HPV33	E1	415	8	IGQWIQSR		42734
HPV33	E1	415	11	IGQWIQSRCEK		42735
HPV33	E1	266	8	IIILLIR		42736
HPV33	E1	266	10	IIILLIRFR		42737
HPV33	E1	267	9	IIILLIRFR		42738
HPV33	E1	268	8	IIILLIRFR		42739
HPV33	E1	268	11	IIILLIRFRCSK		42740
HPV33	E1	200	9	ILYKFKEY		42741
HPV33	E1	400	8	IMCRIYKK		42742
HPV33	E1	400	11	IMCRHYKKA EK		42743
HPV33	E1	112	9	INKNKECTY		42744
HPV33	E1	112	10	INKNKECTYR		42745
HPV33	E1	112	11	INKNKECTYRK		42746
HPV33	E1	492	9	ISCVNSKSH		42747
HPV33	E1	210	8	ISFMELVR		42748
HPV33	E1	210	11	ISFMELVRPFK		42749
HPV33	E1	538	8	ISIDVKHR		42750
HPV33	E1	187	11	ISNVLHSSNTK		42751
HPV33	E1	236	10	ISPSVAESLK		42752
HPV33	E1	520	9	ISWTYIDDY		42753
HPV33	E1	520	11	ISWTYIDDYMR		42754
HPV33	E1	394	10	IVKDCGIMCR		42755
HPV33	E1	394	11	IVKDCGIMCRII		42756
HPV33	E1	197	9	KANILYKFK		42757
HPV33	E1	632	9	KCSAGENTR		42758
HPV33	E1	396	8	KDCGIMCR		42759
HPV33	E1	396	9	KDCGIMCRH		42760
HPV33	E1	396	10	KDCGIMCRHY		42761
HPV33	E1	396	11	KDCGIMCRHYK		42762
HPV33	E1	455	8	KFLKGIPK		42763
HPV33	E1	455	9	KFLKGIPKK		42764
HPV33	E1	488	11	KGCVISCVNSK		42765
HPV33	E1	124	10	KIDELEDSGY		42766
HPV33	E1	393	11	KIVKDCGIMCR		42767
HPV33	E1	612	10	KLDLIEEDK		42768
HPV33	E1	304	10	KLRSQTCALY		42769
HPV33	E1	412	11	KMSIGWQISR		42770
HPV33	E1	114	8	KNKECTYR		42771
HPV33	E1	114	9	KNKECTYRK		42772
HPV33	E1	114	10	KNKECTYRKR		42773
HPV33	E1	114	11	KNKECTYRKRK		42774
HPV33	E1	278	8	KNRLTVAK		42775
HPV33	E1	603	10	KSFSTRWCK		42776
HPV33	E1	387	10	KSNSQAKIVK		42777
HPV33	E1	425	9	KTNDGGNWR		42778

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E1	245	10	KVLKQHSLY		42779
HPV33	E1	533	11	LDGNEISIDVK		42780
HPV33	E1	613	9	LDLJEEDK		42781
HPV33	E1	450	9	LGAFKKFLK		42782
HPV33	E1	467	10	LICGPANTGK		42783
HPV33	E1	615	10	LIEEDKENIH		42784
HPV33	E1	247	8	LIKQHSLY		42785
HPV33	E1	247	10	LIKQHSLYTH		42786
HPV33	E1	271	8	LIRFRCSK		42787
HPV33	E1	271	10	LIRFRCSKNR		42788
HPV33	E1	270	9	LLIRFRCSK		42789
HPV33	E1	270	11	LLIRFRCSKNR		42790
HPV33	E1	269	10	LLIRFRCSK		42791
HPV33	E1	79	8	LNAVCAK		42792
HPV33	E1	79	9	LNAVCAKLR		42793
HPV33	E1	79	10	LNAVCAKRRK		42794
HPV33	E1	350	9	LSEMVQWAY		42795
HPV33	E1	362	9	LTDDSDIAY		42796
HPV33	E1	362	10	LTDDSDIAYY		42797
HPV33	E1	362	11	LTDDSDIAYYY		42798
HPV33	E1	215	9	LVRPFKSDK		42799
HPV33	E1	401	10	MCRHYKKAER		42800
HPV33	E1	466	11	MCRHYKKAERK		42801
HPV33	E1	413	11	MLICGPANTGK		42802
HPV33	E1	481	10	MSIGQWQSR		42803
HPV33	E1	298	8	MSLIQFLK		42804
HPV33	E1	562	9	MVIEPPKLR		42805
HPV33	E1	80	10	NAGTDSRWPY		42806
HPV33	E1	80	8	NAVCAKLR		42807
HPV33	E1	80	9	NAVCAKRRK		42808
HPV33	E1	598	11	NDENWKSFFSR		42809
HPV33	E1	199	10	NILYKFKEAY		42810
HPV33	E1	57	11	NSIQADTEAAR		42811
HPV33	E1	379	9	NSNAAAFLLK	0.3700	42812
HPV33	E1	389	8	NSQAKIVK		42813
HPV33	E1	195	8	NTKANILY		42814
HPV33	E1	195	9	NTKANILYK		42815
HPV33	E1	195	11	NTKANILYKFK		42816
HPV33	E1	560	9	NTNAGTDSR		42817
HPV33	E1	189	9	NVLHSSNTK		42818
HPV33	E1	471	8	PANTGKSY		42819
HPV33	E1	107	8	PCRTSINK		42820
HPV33	E1	107	10	PCRTSINKNK		42821
HPV33	E1	586	10	PFDENGPNVY		42822
HPV33	E1	519	10	PISWTYIDDY		42823
HPV33	E1	434	8	PIVQLLRY		42824

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E1	238	8	PSVAESLK		42825
HPV33	E1	593	11	PVYAINDENWK		42826
HPV33	E1	60	8	QADTEAAR		42827
HPV33	E1	326	10	QGTTPWIDR		42828
HPV33	E1	94	10	QSAEDVVDR		42829
HPV33	E1	308	9	QTCALYWFR		42830
HPV33	E1	275	11	RCSKNRLTVAK		42831
HPV33	E1	273	8	RFRCSKNR		42832
HPV33	E1	264	10	RGIILLIR		42833
HPV33	E1	575	8	RLTVFEFK		42834
HPV33	E1	306	8	RSQTCALY		42835
HPV33	E1	306	11	RSQTCALYWFR		42836
HPV33	E1	109	8	RTSINKNK		42837
HPV33	E1	95	9	SAEDVVDR		42838
HPV33	E1	634	10	SAGENTRSLR		42839
HPV33	E1	225	10	SCDWCITGY		42840
HPV33	E1	493	8	SCVNSKSH		42841
HPV33	E1	604	9	SFFSRTWCK		42842
HPV33	E1	211	10	SFMELVRPFK		42843
HPV33	E1	414	9	SIGQWQSR		42844
HPV33	E1	111	10	SINKNKECTY		42845
HPV33	E1	111	11	SINKNKECTYR		42846
HPV33	E1	58	10	SIQADTEAAR		42847
HPV33	E1	243	9	SLKVLKQH		42848
HPV33	E1	380	8	SNAAAFLLK		42849
HPV33	E1	378	10	SNSNAAAFLLK		42850
HPV33	E1	388	9	SNSQAKIVK		42851
HPV33	E1	194	9	SNTKANILY		42852
HPV33	E1	194	10	SNTKANILYK		42853
HPV33	E1	559	10	SNTNAGTDSR		42854
HPV33	E1	188	10	SNVLHSSNTK		42855
HPV33	E1	193	10	SSNTKANILY		42856
HPV33	E1	193	11	SSNTKANILYK		42857
HPV33	E1	239	11	SVAESLKVLIK		42858
HPV33	E1	447	8	TAFLGAFK		42859
HPV33	E1	447	9	TAFLGAFKK		42860
HPV33	E1	309	8	TCALYWFR		42861
HPV33	E1	296	9	TCMVIEPPK		42862
HPV33	E1	296	11	TCMVIEPPKLR		42863
HPV33	E1	363	8	TDDSDIAY		42864
HPV33	E1	363	9	TDDSDIAYY		42865
HPV33	E1	363	10	TDDSDIAYYY		42866
HPV33	E1	565	9	TDSRWPLYLH		42867
HPV33	E1	565	11	TDSRWPLYLSR		42868
HPV33	E1	227	8	TDWCITGY		42869
HPV33	E1	630	11	TFKCSAGENTR		42870

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E1	183	10	TLQEISNV LH		42871
HPV33	E1	561	8	TNAGTDSR		42872
HPV33	E1	561	11	TNAGTDSRWPY		42873
HPV33	E1	426	8	TNDGGNWR		42874
HPV33	E1	224	11	TSCTDWCITGY		42875
HPV33	E1	110	11	TSINKNKECTY		42876
HPV33	E1	558	11	TSNTNAGTDSR		42877
HPV33	E1	328	8	TTPEWIDR		42878
HPV33	E1	240	10	VAESLKVLIK		42879
HPV33	E1	101	9	VDRAANPCR		42880
HPV33	E1	299	8	VIEPPKLR		42881
HPV33	E1	491	8	VISCVNSK		42882
HPV33	E1	491	10	VISCVNSKSH		42883
HPV33	E1	190	8	VLHSSNTK		42884
HPV33	E1	246	9	VLIKQHSLY		42885
HPV33	E1	246	11	VLIKQHSLYTH		42886
HPV33	E1	182	11	VLQEISNV LH		42887
HPV33	E1	517	8	VTPISWTY		42888
HPV33	E1	100	10	VVDRAANPCR		42889
HPV33	E1	17	10	WFEVEAVIER		42890
HPV33	E1	17	11	WFEVEAVIER		42891
HPV33	E1	332	10	WDR LTVLQH		42892
HPV33	E1	418	8	WQSRCEK		42893
HPV33	E1	502	9	WLQPLSDAK		42894
HPV33	E1	522	9	WTYIDDYMR		42895
HPV33	E1	595	9	YAINDENWK		42896
HPV33	E1	478	11	YFGMSLIQFLK		42897
HPV33	E1	208	10	YGISFMELVR		42898
HPV33	E1	254	11	YTHLQCLTCDR		42899
HPV33	E2	210	10	ADIQTDNDNR		42900
HPV33	E2	246	8	ADPALDNR		42901
HPV33	E2	246	11	ADPALDNRRTAR		42902
HPV33	E2	249	8	ALDNRRTAR		42903
HPV33	E2	78	10	ALETLSKSQY		42904
HPV33	E2	258	9	ATNCTNKQR		42905
HPV33	E2	10	10	AVQEKILDLY		42906
HPV33	E2	245	9	CADPALDNR		42907
HPV33	E2	40	8	CALLYTAK		42908
HPV33	E2	288	9	CLRYRLKPY		42909
HPV33	E2	288	10	CLRYRLKPYK		42910
HPV33	E2	269	10	CSSNVAPIVH		42911
HPV33	E2	145	10	CTMVTGKVDY		42912
HPV33	E2	211	9	DIQTDNDNR		42913
HPV33	E2	25	8	DLPSQIEIHW		42914
HPV33	E2	25	10	DLPSQIEIHWK		42915
HPV33	E2	122	10	DNDKKNTMDY		42916

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E2	217	10	DNRPPQAAAK		42917
HPV33	E2	217	11	DNRPPQAAAKR		42918
HPV33	E2	235	8	DTAQPLTK		42919
HPV33	E2	143	9	DTCTMTGK		42920
HPV33	E2	232	11	DTDTAQPLTK		42921
HPV33	E2	39	9	ECALLYTAK		42922
HPV33	E2	173	8	EDAAKYSK		42923
HPV33	E2	142	10	EDTCTMTGK		42924
HPV33	E2	74	11	ELQMALETLSK		42925
HPV33	E2	298	11	ELYSSMSSTWH		42926
HPV33	E2	282	9	ESNSLKCLR		42927
HPV33	E2	282	10	ESNSLKCLRY		42928
HPV33	E2	282	11	ESNSLKCLRYR		42929
HPV33	E2	80	8	ETLSKSQY		42930
HPV33	E2	115	11	ETVTVQYDNDK		42931
HPV33	E2	100	9	EVWLCEPPK		42932
HPV33	E2	244	10	FCADPALDNR		42933
HPV33	E2	156	10	GMYYIHNECK		42934
HPV33	E2	278	10	HLKGESNSLK		42935
HPV33	E2	161	9	INCEKVVYFK		42936
HPV33	E2	161	10	INCEKVVYFKY		42937
HPV33	E2	155	11	IGMYIINCEK		42938
HPV33	E2	15	9	ILDLYEADK		42939
HPV33	E2	4	11	ISARLNAVQEK		42940
HPV33	E2	287	8	KCLRYRLK		42941
HPV33	E2	287	10	KCLRYRLKPY		42942
HPV33	E2	287	11	KCLRYRLKPYK		42943
HPV33	E2	280	8	KGESNSLK		42944
HPV33	E2	280	11	KGESNSLKCLR		42945
HPV33	E2	14	10	KILDLYEADK		42946
HPV33	E2	34	11	KLIRMECALLY		42947
HPV33	E2	23	10	KTDLP SQIEH		42948
HPV33	E2	180	8	KTQMWEVH		42949
HPV33	E2	151	8	KVDYIGMY		42950
HPV33	E2	151	9	KVDYIGMY		42951
HPV33	E2	151	11	KVDYIGMY		42952
HPV33	E2	165	8	KVYFKYFK		42953
HPV33	E2	103	9	LCEPPKCFK		42954
HPV33	E2	103	10	LCEPPKCFKK		42955
HPV33	E2	16	8	LDLYEADK		42956
HPV33	E2	243	11	LFCADPALDNR		42957
HPV33	E2	35	10	LIRMECALLY		42958
HPV33	E2	77	8	MALETLSK		42959
HPV33	E2	77	11	MALETLSKSQY		42960
HPV33	E2	129	10	MDYTNWGEIY		42961
HPV33	E2	49	8	MGFSLCH		42962

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV33	E2	147	8	MVTGKVDY	42963
HPV33	E2	9	11	NAVQEKILDLY	42964
HPV33	E2	162	8	NCEKVYFK	42965
HPV33	E2	162	9	NCEKVYFKY	42966
HPV33	E2	162	11	NCEKVYFKYFK	42967
HPV33	E2	123	9	NDKNTMDY	42968
HPV33	E2	216	11	NDNRPPQAAAK	42969
HPV33	E2	284	8	NSLKCLRY	42970
HPV33	E2	284	9	NSLKCLRYR	42971
HPV33	E2	284	11	NSLKCLRYRLK	42972
HPV33	E2	272	9	NVAPIVHLK	42973
HPV33	E2	248	9	PALDNRTAR	42974
HPV33	E2	60	9	PSLASKTK	42975
HPV33	E2	27	8	PSQIEHWK	42976
HPV33	E2	27	11	PSQIEHWKLIR	42977
HPV33	E2	222	8	QAAAKRRR	42978
HPV33	E2	113	9	QGETVTVQY	42979
HPV33	E2	29	9	QIEHWKLIR	42980
HPV33	E2	76	9	QMALETLSK	42981
HPV33	E2	332	8	QMFLGTVK	42982
HPV33	E2	48	9	QMGFSLCH	42983
HPV33	E2	57	10	QVVPSSLASK	42984
HPV33	E2	292	9	RLKPYKELY	42985
HPV33	E2	7	8	RLNAVQEK	42986
HPV33	E2	37	8	RMECALLY	42987
HPV33	E2	37	11	RMECALLYTAK	42988
HPV33	E2	256	9	RTATNCTNK	42989
HPV33	E2	256	11	RTATNCTNKQR	42990
HPV33	E2	5	10	SARLNAVQEK	42991
HPV33	E2	98	11	SLEVWLCPPK	42992
HPV33	E2	285	8	SLKCLRYR	42993
HPV33	E2	285	10	SLKCLRYRLK	42994
HPV33	E2	61	8	SLASKTK	42995
HPV33	E2	283	8	SNSLKCLR	42996
HPV33	E2	283	9	SNSLKCLRY	42997
HPV33	E2	283	10	SNSLKCLRYR	42998
HPV33	E2	271	8	SNVAPIVH	42999
HPV33	E2	271	10	SNVAPIVHLK	43000
HPV33	E2	301	8	SSMSSTWH	43001
HPV33	E2	270	9	SSNVAPIVH	43002
HPV33	E2	270	11	SSNVAPIVHLK	43003
HPV33	E2	304	11	SSTWIWTS DNK	43004
HPV33	E2	305	10	STWIIWTS DNK	43005
HPV33	E2	209	11	TADIQTNDNR	43006
HPV33	E2	45	9	TAKQMGFSII	43007
HPV33	E2	254	11	TARTATNCTNK	43008

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All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E2	257	8	TATNCTNK		43009
HPV33	E2	257	10	TATNCTNKQR		43010
HPV33	E2	144	8	TCTMVTGK		43011
HPV33	E2	144	11	TCTMVTGKVDY		43012
HPV33	E2	24	9	TDLPSQIEH		43013
HPV33	E2	24	11	TDLPSQIEHWK		43014
HPV33	E2	234	9	TDTAQPLTK		43015
HPV33	E2	149	10	TGKVDYIGMY		43016
HPV33	E2	149	11	TGKVDYIGMY		43017
HPV33	E2	128	11	TMDYTNWGEIY		43018
HPV33	E2	146	9	TMVTGKVDY		43019
HPV33	E2	259	8	TNCTNKQR		43020
HPV33	E2	310	8	TSDNKNK		43021
HPV33	E2	233	10	TTDTAQPLTK		43022
HPV33	E2	118	8	TVQYDNDK		43023
HPV33	E2	118	9	TVQYDNDKK		43024
HPV33	E2	116	10	TVTVQYDNDK		43025
HPV33	E2	116	11	TVTVQYDNDKK		43026
HPV33	E2	273	8	VAPIVHLK		43027
HPV33	E2	268	11	VCSSNVAPIVH		43028
HPV33	E2	152	8	VDYIGMY		43029
HPV33	E2	152	10	VDYIGMYIIH		43030
HPV33	E2	148	11	VTGKVDYIGMY		43031
HPV33	E2	117	9	VTQYDNDK		43032
HPV33	E2	117	10	VTQYDNDKK		43033
HPV33	E2	58	9	VVPSLLASK		43034
HPV33	E2	58	11	VVPSLLASKTK		43035
HPV33	E2	102	10	WLCEPPKCFK		43036
HPV33	E2	102	11	WLCEPPKCFKK		43037
HPV33	E2	309	9	WTSNKNK		43038
HPV33	E2	121	11	YDNDKKNTMDY		43039
HPV33	E2	170	8	YFKEDAAK		43040
HPV33	E2	170	9	YFKEDAAKY		43041
HPV33	E2	170	11	YFKEDAAKYSK		43042
HPV33	E2	167	11	YFKYFKEDAAK		43043
HPV33	E2	154	8	YIGMYIIH		43044
HPV33	E2	159	9	YIHNCEKVY		43045
HPV33	E2	159	11	YIHNCEKVYFK		43046
HPV33	E2	178	10	YSKTQMWVEVH		43047
HPV33	E2	300	9	YSSMSSTWH		43048
HPV33	E2	44	10	YTAKQMGFSH		43049
HPV33	E2	131	8	YTNWGEIY		43050
HPV33	E5	63	8	GINFHAQH		43051
HPV33	E5	51	8	FCYLLFLY		43052
HPV33	E5	50	9	FFCYLLFLY		43053
HPV33	E5	12	9	FLCLSLLLR		43054

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E5	44	10	GSPLKIFFCY		43055
HPV33	E5	49	10	IFFCYLLFLY		43056
HPV33	E5	10	11	ILFLCLSLLR		43057
HPV33	E5	48	11	KIFFCYLLFLY		43058
HPV33	E5	13	8	LCLSLLR		43059
HPV33	E5	11	10	LFLCLSLLR		43060
HPV33	E5	22	8	LILSISTY		43061
HPV33	E5	38	11	LLWVFGSPLK		43062
HPV33	E5	62	9	MCINFHAQH		43063
HPV33	E5	61	10	MMCFNHAQH		43064
HPV33	E5	21	9	PLILSISTY		43065
HPV33	E5	46	8	PLKIFFCY		43066
HPV33	E5	60	8	PMMCINFH		43067
HPV33	E5	60	11	PMMCINFHAQH		43068
HPV33	E5	41	8	VFGSPLK		43069
HPV33	E5	43	11	VGSPLKIFFCY		43070
HPV33	E5	40	9	WVFGSPLK		43071
HPV33	E5	58	10	YLPMMCINFH		43072
HPV33	E6	137	8	AACWRSRR		43073
HPV33	E6	137	9	AACWRSRRR		43074
HPV33	E6	138	8	ACWRSRRR		43075
HPV33	E6	48	8	ADLTVVYR		43076
HPV33	E6	46	9	AFADLTVVY		43077
HPV33	E6	46	10	AFADLTVVYR		43078
HPV33	E6	133	9	AGRCAACWR		43079
HPV33	E6	133	11	AGRCAACWRSR		43080
HPV33	E6	136	8	CAACWRSR		43081
HPV33	E6	136	9	CAACWRSRR		43082
HPV33	E6	136	10	CAACWRSRRR		43083
HPV33	E6	66	11	CLRFLSKISEY		43084
HPV33	E6	30	10	CVECKKPLQR		43085
HPV33	E6	44	11	DFAFADLTVVY		43086
HPV33	E6	14	11	DLQQALETTH		43087
HPV33	E6	4	10	DTEEKPRTLH		43088
HPV33	E6	32	8	ECKKPLQR		43089
HPV33	E6	56	9	EGNPFQICK		43090
HPV33	E6	98	11	EILIRCHICQR		43091
HPV33	E6	27	8	ELQCVECK		43092
HPV33	E6	27	9	ELQCVECKK		43093
HPV33	E6	47	8	FADLTVVY		43094
HPV33	E6	47	9	FADLTVVYR		43095
HPV33	E6	45	10	FAFADLTVVY		43096
HPV33	E6	45	11	FAFADLTVVYR		43097
HPV33	E6	60	9	FGCKLCLR		43098
HPV33	E6	69	8	FLSKISEY		43099
HPV33	E6	69	9	FLSKISEYR		43100

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E6	69	10	FLSKISEYRIH		43101
HPV33	E6	69	11	FLSKISEYRIY		43102
HPV33	E6	61	8	GICKLCLR		43103
HPV33	E6	57	8	GNPFGICK		43104
HPV33	E6	85	9	GNTLEQTVK		43105
HPV33	E6	85	10	GNTLEQTVKK		43106
HPV33	E6	24	11	HNIELQCVECK		43107
HPV33	E6	126	10	HNISGRWAGR		43108
HPV33	E6	118	9	HVDLNKR FH		43109
HPV33	E6	62	11	ICKLCLRFLSK		43110
HPV33	E6	105	11	ICQRLCPQEK		43111
HPV33	E6	99	10	ILIRCHICQR		43112
HPV33	E6	73	9	ISEYRHVNY		43113
HPV33	E6	128	8	ISGRWAGR		43114
HPV33	E6	72	8	KISEYRHY		43115
HPV33	E6	72	10	KISEYRHVNY		43116
HPV33	E6	64	9	KLCLRFLSK		43117
HPV33	E6	65	8	LCLRFLSK		43118
HPV33	E6	110	8	LCPOEKKR		43119
HPV33	E6	110	9	LCPOEKKRH		43120
HPV33	E6	15	10	LCQALETTIH		43121
HPV33	E6	100	9	LIRCHICQR		43122
HPV33	E6	121	11	LNKR FHISGR		43123
HPV33	E6	70	8	LSKISEYR		43124
HPV33	E6	70	9	LSKISEYRH		43125
HPV33	E6	70	10	LSKISEYRIY		43126
HPV33	E6	1	8	MFQDTEEK		43127
HPV33	E6	1	10	MFQDTEEKPR		43128
HPV33	E6	25	10	NIELQCVECK		43129
HPV33	E6	25	11	NIELQCVECKK		43130
HPV33	E6	127	9	NISGRWAGR		43131
HPV33	E6	86	8	NTLEQTVK		43132
HPV33	E6	86	9	NTLEQTVKK		43133
HPV33	E6	59	10	PFGICKLCLR		43134
HPV33	E6	109	8	PLCPQEKK		43135
HPV33	E6	109	9	PLCPQEKKR		43136
HPV33	E6	109	10	PLCPQEKKRH		43137
HPV33	E6	95	8	PLNEILIR		43138
HPV33	E6	36	8	PLQRSEVY		43139
HPV33	E6	17	8	QALETTIH		43140
HPV33	E6	29	11	QCVECKKPLQR		43141
HPV33	E6	3	8	QDTEEKPR		43142
HPV33	E6	3	11	QDTEEKPTLII		43143
HPV33	E6	135	9	RCAACWRSR		43144
HPV33	E6	135	10	RCAACWRSRR		43145
HPV33	E6	135	11	RCAACWRSRRR		43146

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	E6	124	8	RFINISGR		43147
HPV33	E6	68	9	RFLSKISEY		43148
HPV33	E6	68	10	RFLSKISEYR		43149
HPV33	E6	68	11	RFLSKISEYRH		43150
HPV33	E6	87	8	TLEQTVKK		43151
HPV33	E6	119	8	VDLNKRFH		43152
HPV33	E6	132	10	WAGRCAACWR		43153
HPV33	E6	84	10	YGNLTLEQTVK		43154
HPV33	E6	84	11	YGNLTLEQTVKK		43155
HPV33	E7	50	10	ADYYIVTCCH		43156
HPV33	E7	57	10	CCHTCNTTVR		43157
HPV33	E7	68	10	CVNSTASDLR		43158
HPV33	E7	42	11	DGQAQPATADY		43159
HPV33	E7	14	10	DLYPEPTDLY		43160
HPV33	E7	30	11	DSSDEGLDR		43161
HPV33	E7	59	8	HTCNTTVR		43162
HPV33	E7	67	11	LCVNSTASDLR		43163
HPV33	E7	13	11	LDLYPEPTDLY		43164
HPV33	E7	70	8	NSTASDLR		43165
HPV33	E7	6	11	PTLKEYVLDLY		43166
HPV33	E7	44	9	QAQPATADY		43167
HPV33	E7	44	10	QAQPATADYY		43168
HPV33	E7	2	8	RGLKPTLK		43169
HPV33	E7	2	10	RGHKPTLKEY		43170
HPV33	E7	32	9	SDEDEGLDR		43171
HPV33	E7	31	10	SSEDEGLDR		43172
HPV33	E7	49	11	TADYYIVTCCH		43173
HPV33	E7	56	11	TCCHTCNTTVR		43174
HPV33	E7	7	10	TLKEYVLDLY		43175
HPV33	E7	69	9	VNSTASDLR		43176
HPV33	L1	102	9	ACVGLEIGR		43177
HPV33	L1	456	10	ADLDQFPLGR		43178
HPV33	L1	456	11	ADLDQFPLGRK		43179
HPV33	L1	142	11	ADNRECLSM DY		43180
HPV33	L1	471	8	AGLKAAPK		43181
HPV33	L1	471	10	AGLKAAPKPKL		43182
HPV33	L1	471	11	AGLKAAPKPKLR		43183
HPV33	L1	37	11	AGSRLLAVGH		43184
HPV33	L1	424	11	AITCQKTVPPK		43185
HPV33	L1	411	8	ASLQDTYR		43186
HPV33	L1	44	10	AVGHIPYFSIK		43187
HPV33	L1	270	9	AVPDDL YIK		43188
HPV33	L1	225	10	CGSTCKYPDY		43189
HPV33	L1	207	11	CMDFKTLQANK		43190
HPV33	L1	345	10	CTQVTS DSTY		43191
HPV33	L1	345	11	CTQVTS DSTYK		43192

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L1	103	8	CVGLEIGR		43193
HPV33	L1	128	8	DDTETGNK		43194
HPV33	L1	128	9	DDTETGNKY		43195
HPV33	L1	209	9	DFKTLQANK		43196
HPV33	L1	223	8	DICGSTCK		43197
HPV33	L1	223	9	DICGSTCKY		43198
HPV33	L1	457	9	DLDDQFPLGR		43199
HPV33	L1	457	10	DLDDQFPLGRK		43200
HPV33	L1	370	10	DLQVFQLCK		43201
HPV33	L1	143	10	DNRECLSM DY		43202
HPV33	L1	143	11	DNRECLSM DYK		43203
HPV33	L1	244	8	DSLFFFLR		43204
HPV33	L1	244	9	DSLFFFLRR		43205
HPV33	L1	351	10	DSTYKNENFK		43206
HPV33	L1	129	8	DTETGNKY		43207
HPV33	L1	202	10	DTGFGCMDFK		43208
HPV33	L1	88	11	DTSFYNPDTQR		43209
HPV33	L1	269	8	EAVPDDLY		43210
HPV33	L1	269	10	EAVPDDLYIK		43211
HPV33	L1	146	8	ECLSM DYK		43212
HPV33	L1	357	8	ENFKEYIR		43213
HPV33	L1	357	9	ENFKEYIRII		43214
HPV33	L1	303	9	ESQLFNKPY		43215
HPV33	L1	127	9	FDDTETGNK		43216
HPV33	L1	127	10	FDDTETGNKY		43217
HPV33	L1	248	11	FFLRREQMFVR		43218
HPV33	L1	84	9	FGPDTSFY		43219
HPV33	L1	467	8	FLQAGLK		43220
HPV33	L1	467	10	FLQAGLKAK		43221
HPV33	L1	249	10	FLRREQMFVR		43222
HPV33	L1	249	11	FLRREQMFVRII		43223
HPV33	L1	307	9	FNKPYWLQR		43224
HPV33	L1	50	10	FSIKNPTNAK		43225
HPV33	L1	50	11	FSIKNPTNAKK		43226
HPV33	L1	256	8	FVRIIFNR		43227
HPV33	L1	419	11	FVTSQAITCQK		43228
HPV33	L1	330	9	FVTVDITR		43229
HPV33	L1	161	9	GCKPPTGEH		43230
HPV33	L1	243	9	GDSLFFFLR		43231
HPV33	L1	243	10	GDSLFFFLRR		43232
HPV33	L1	204	8	GFGCMDFK		43233
HPV33	L1	85	8	GFPDTSFY		43234
HPV33	L1	117	10	GISGHIPLNK		43235
HPV33	L1	472	9	GLKAKPKLK		43236
HPV33	L1	472	10	GLKAKPKLKR		43237
HPV33	L1	68	8	GLQYRVFR		43238

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L1	68	10	GLQYRVFVR		43239
HPV33	L1	38	10	GSSRLAVGH		43240
HPV33	L1	226	9	GSTCKYPDY		43241
HPV33	L1	226	11	GSTCKYPDYLK		43242
HPV33	L1	224	8	ICGSTCKY		43243
HPV33	L1	224	11	ICGSTCKYPDY		43244
HPV33	L1	222	9	IDICGSTCK		43245
HPV33	L1	222	10	IDICGSTCKY		43246
HPV33	L1	118	9	ISGHPLLNK		43247
HPV33	L1	425	10	ITCQKTVPPK		43248
HPV33	L1	474	8	KAKPKLKR		43249
HPV33	L1	126	10	KFDDDTETGNK		43250
HPV33	L1	126	11	KFDDDTETGNKY		43251
HPV33	L1	83	10	KFGPDTSFY		43252
HPV33	L1	466	9	KFLQAGLK		43253
HPV33	L1	466	11	KFLQAGLKAK		43254
HPV33	L1	478	11	KLKRAAPTSTR		43255
HPV33	L1	355	8	KNENFKEY		43256
HPV33	L1	355	10	KNENFKEYIR		43257
HPV33	L1	355	11	KNENFKEYIRH		43258
HPV33	L1	53	8	KNPTNAKK		43259
HPV33	L1	429	8	KTVPPKEK		43260
HPV33	L1	65	8	KVSGLOYR		43261
HPV33	L1	65	11	KVSGLOYRVFR		43262
HPV33	L1	379	11	KVTLTAEVMTY		43263
HPV33	L1	20	8	KVSTDEY		43264
HPV33	L1	20	11	KVSTDEYVSR		43265
HPV33	L1	43	11	LAVGHPYFSIK		43266
HPV33	L1	344	11	LCTQVTSYSTY		43267
HPV33	L1	458	8	LDQFPLGR		43268
HPV33	L1	458	9	LDQFPLGRK		43269
HPV33	L1	306	10	LFNKPYWLQR		43270
HPV33	L1	160	10	LGCKPPTGEI		43271
HPV33	L1	267	10	LGEAVPDDL		43272
HPV33	L1	114	8	LGVGISGH		43273
HPV33	L1	42	8	LLAVGHPY		43274
HPV33	L1	159	11	LLGCKPPTGEH		43275
HPV33	L1	468	9	LLQAGLKAK		43276
HPV33	L1	468	11	LLQAGLKAKPK		43277
HPV33	L1	61	11	LLVPKVSGLQY		43278
HPV33	L1	382	8	LTAEVMTY		43279
HPV33	L1	382	10	LTAEVMTYIH		43280
HPV33	L1	62	10	LVPKVSGLQY		43281
HPV33	L1	62	11	LVPKVSGLQYR		43282
HPV33	L1	208	10	MDFKTLQANK		43283
HPV33	L1	255	9	MFVRIHFNR		43284

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L1	299	11	MVTSEQLFNK		43285
HPV33	L1	57	9	NAKKLLVPK		43286
HPV33	L1	358	8	NFREYIRH		43287
HPV33	L1	232	11	PDYLMKMTSEPY		43288
HPV33	L1	137	9	PGQPGADNR		43289
HPV33	L1	221	10	PIDICGSTCK		43290
HPV33	L1	221	11	PIDICGSTCKY		43291
HPV33	L1	113	9	PLGVGISGH		43292
HPV33	L1	409	9	PSASLQDTY		43293
HPV33	L1	409	10	PSASLQDTYR		43294
HPV33	L1	165	8	PTGEHWGK		43295
HPV33	L1	55	11	PTNAKKLLVPK		43296
HPV33	L1	484	10	PTSTRTSSAK		43297
HPV33	L1	484	11	PTSTRTSSAKR		43298
HPV33	L1	17	11	PVSKVVSTDEY		43299
HPV33	L1	470	9	QAGLKAKPK		43300
HPV33	L1	470	11	QAGLKAKPKLK		43301
HPV33	L1	372	8	QFVFQLCK		43302
HPV33	L1	156	8	QLCLLGCK		43303
HPV33	L1	305	11	QLFNKPYWLQR		43304
HPV33	L1	254	10	QMFVRHIFNR		43305
HPV33	L1	154	10	QTQLCLLGCK		43306
HPV33	L1	328	11	QVFTVVVDTR		43307
HPV33	L1	347	8	QVTSdsty		43308
HPV33	L1	347	9	QVTSdstyK		43309
HPV33	L1	481	8	RAAPTSTR		43310
HPV33	L1	41	9	RLAVGHIPY		43311
HPV33	L1	488	8	RTSSAKRK		43312
HPV33	L1	488	9	RTSSAKRKK		43313
HPV33	L1	488	11	RTSSAKRKKVK		43314
HPV33	L1	75	9	RVRLDPNK		43315
HPV33	L1	455	11	SADLDQFPLGR		43316
HPV33	L1	491	8	SAKRKKVK		43317
HPV33	L1	491	8	SAKRKKVKK		43318
HPV33	L1	410	9	SASLQDTY		43319
HPV33	L1	410	9	SASLQDTYR		43320
HPV33	L1	350	11	SDSTYKNENFK		43321
HPV33	L1	90	9	SFYNPDTQR		43322
HPV33	L1	119	8	SGHPLLNK		43323
HPV33	L1	67	9	SGLQYRVFR		43324
HPV33	L1	67	11	SGLQYRVFRVR		43325
HPV33	L1	51	9	SIKNPTNAK		43326
HPV33	L1	51	10	SIKNPTNAKK		43327
HPV33	L1	32	10	SIYYAGSSR		43328
HPV33	L1	245	8	SLFFFLRR		43329
HPV33	L1	490	9	SSAKRKKVK		43330

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L1	490	10	SSAKRKKVKK		43331
HPV33	L1	39	9	SSRLAVGH		43332
HPV33	L1	39	11	SSRLAVGHPY		43333
HPV33	L1	227	8	STCKYPDY		43334
HPV33	L1	227	10	STCKYPDYLK		43335
HPV33	L1	23	8	STDEYVSR		43336
HPV33	L1	486	8	STRSSAK		43337
HPV33	L1	486	9	STRSSAKR		43338
HPV33	L1	486	10	STRSSAKRK		43339
HPV33	L1	486	11	STRSSAKRKK		43340
HPV33	L1	352	9	STYKNENFK		43341
HPV33	L1	352	11	STYKNENFKEY		43342
HPV33	L1	2	11	SVWRPSEATVY		43343
HPV33	L1	383	9	TAEVMTYIH		43344
HPV33	L1	228	9	TCQKTPPK		43345
HPV33	L1	426	9	TCQKTPPK		43346
HPV33	L1	426	11	TCQKTPPKKEK		43347
HPV33	L1	24	11	TDEYVSRYSIY		43348
HPV33	L1	444	8	TFWEVDLK		43349
HPV33	L1	444	10	TFWEVDLKEK		43350
HPV33	L1	203	9	TGFGCMDFK		43351
HPV33	L1	266	11	TLGEAVPDDL		43352
HPV33	L1	381	9	TLTAEVMTY		43353
HPV33	L1	381	11	TLTAEVMTYIH		43354
HPV33	L1	56	10	TNAKKLLVPK		43355
HPV33	L1	301	9	TSEQLFNK		43356
HPV33	L1	301	11	TSEQLFNKPY		43357
HPV33	L1	89	10	TSFYNPDTQR		43358
HPV33	L1	31	11	TSIYYAGSSR		43359
HPV33	L1	421	9	TSQAITCQK		43360
HPV33	L1	489	8	TSSAKRKK		43361
HPV33	L1	489	10	TSSAKRKKVK		43362
HPV33	L1	489	11	TSSAKRKKVKK		43363
HPV33	L1	485	9	TSTRTSSAK		43364
HPV33	L1	485	10	TSTRTSSAKR		43365
HPV33	L1	485	11	TSTRTSSAKRK		43366
HPV33	L1	10	11	TVLPPVPVSK		43367
HPV33	L1	201	11	VDTGFGCMDFK		43368
HPV33	L1	73	11	VFRVRLDPNK		43369
HPV33	L1	329	10	VFTVVDVTR		43370
HPV33	L1	45	9	VGHPYFSK		43371
HPV33	L1	116	11	VGISGHPLLNK		43372
HPV33	L1	66	10	VSGLYRVFR		43373
HPV33	L1	18	10	VSKVVSTDEY		43374
HPV33	L1	28	8	VSRTSIY		43375
HPV33	L1	28	9	VSRTSIYY		43376

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L1	22	9	VSTDEYVSR		43377
HPV33	L1	380	10	VTLTAEVMTY		43378
HPV33	L1	348	8	VTSDSTYK		43379
HPV33	L1	300	10	VTSQSLFNK		43380
HPV33	L1	420	10	VTSQAITCQK		43381
HPV33	L1	331	8	VTVVDITR		43382
HPV33	L1	21	10	VVSTDEYVSR		43383
HPV33	L1	101	10	WACVGLEIGR		43384
HPV33	L1	312	8	WLQRAQGH		43385
HPV33	L1	369	11	YDLQFVFQLCK		43386
HPV33	L1	49	11	YFSIKNPTNAK		43387
HPV33	L1	242	10	YGDSLFFFLR		43388
HPV33	L1	242	11	YGDSLFFFLRR		43389
HPV33	L1	362	8	YIRHVEEY		43390
HPV33	L1	234	9	YLKMTSEPY		43391
HPV33	L1	12	9	YLPVPVPSK		43392
HPV33	L1	443	9	YTFWEVDLK		43393
HPV33	L1	443	11	YTFWEVDLKEK		43394
HPV33	L1	27	8	YVSRTSIV		43395
HPV33	L1	27	9	YVSRTSIYY		43396
HPV33	L1	27	10	YVSRTSIYYY		43397
HPV33	L2	81	9	AAIPLQPIR		43398
HPV33	L2	367	8	ADDVDNVH		43399
HPV33	L2	438	9	ADFVLHPSY		43400
HPV33	L2	241	8	AFLTSPHK		43401
HPV33	L2	82	8	AIPLQPIR		43402
HPV33	L2	291	10	AITSRRHTVR		43403
HPV33	L2	286	10	ALHRPAITSR		43404
HPV33	L2	286	11	ALHRPAITSRR		43405
HPV33	L2	12	11	ASATQLYQTCCK		43406
HPV33	L2	308	9	ATLKTRSGK		43407
HPV33	L2	14	9	ATQLYQTCCK		43408
HPV33	L2	280	9	DFLDIALH		43409
HPV33	L2	280	10	DFLDIALHR		43410
HPV33	L2	439	8	DFVLHPSY		43411
HPV33	L2	436	8	DGADFLH		43412
HPV33	L2	436	11	DGADFLHPSY		43413
HPV33	L2	327	10	DLSPVPLDIH		43414
HPV33	L2	371	9	DNVHTPMQHI		43415
HPV33	L2	371	11	DNVHTPMQHSY		43416
HPV33	L2	369	11	DVDNVHTPMQH		43417
HPV33	L2	364	11	DVYADDVDNVH		43418
HPV33	L2	263	8	EDTLQFQH		43419
HPV33	L2	36	11	EGSTIADQILK		43420
HPV33	L2	149	10	ESSIQTISTII		43421
HPV33	L2	260	11	FPEDTLQFQH		43422

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L2	447	8	FILRRRK		43423
HPV33	L2	447	9	FILRRRK		43424
HPV33	L2	281	8	FLDIHLH		43425
HPV33	L2	281	9	FLDIHLH		43426
HPV33	L2	242	11	FLTSPHKLITY		43427
HPV33	L2	301	11	FSRVGQKATLK		43428
HPV33	L2	183	11	FSSPTVSTQSY		43429
HPV33	L2	163	8	FTEPSVLH		43430
HPV33	L2	440	11	FVLHPSYFILR		43431
HPV33	L2	437	10	GADFVLHPSY		43432
HPV33	L2	58	11	GIGTSGSGGR		43433
HPV33	L2	226	11	GLYSRNTQQVK		43434
HPV33	L2	64	8	GSGGRTGY		43435
HPV33	L2	62	10	GSGGRTGY		43436
HPV33	L2	218	11	GSRPVARLGLY		43437
HPV33	L2	37	10	GSTIADQILK		43438
HPV33	L2	37	11	GSTIADQILKY		43439
HPV33	L2	25	10	GTCPPDVIPK		43440
HPV33	L2	60	9	GTGSGSGGR		43441
HPV33	L2	349	8	IDTSTSY		43442
HPV33	L2	379	10	HSYSTFAITR		43443
HPV33	L2	374	8	HTPMQHSY		43444
HPV33	L2	336	8	HTVPNEQY		43445
HPV33	L2	297	11	HTVRSRVGQK		43446
HPV33	L2	40	8	IADQILKY		43447
HPV33	L2	285	11	IALHRPAITSR		43448
HPV33	L2	318	8	IGARIHY		43449
HPV33	L2	59	10	IGTSGSGGR		43450
HPV33	L2	448	8	ILRRRK		43451
HPV33	L2	448	11	ILRRRKRPY		43452
HPV33	L2	358	9	INDGLYDVY		43453
HPV33	L2	292	9	ITSRRHTVR		43454
HPV33	L2	433	11	IVVDGADFVLH		43455
HPV33	L2	307	10	KATLKTRSGK		43456
HPV33	L2	311	11	KTRSGKQIGAR		43457
HPV33	L2	334	10	LDITVPNEQY		43458
HPV33	L2	282	8	LDIHLH		43459
HPV33	L2	328	9	LSPVPLDIH		43460
HPV33	L2	243	10	LTSPHKLITY		43461
HPV33	L2	359	8	NDGLYDVY		43462
HPV33	L2	372	8	NVHTPMQH		43463
HPV33	L2	372	10	NVHTPMQHSY		43464
HPV33	L2	240	8	PAFLTSPH		43465
HPV33	L2	240	9	PAFLTSPHIK		43466
HPV33	L2	290	8	PAITSRRH		43467
HPV33	L2	290	11	PAITSRRHTVR		43468

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV33	L2	172	9	PAPAEASGII		43469
HPV33	L2	279	10	PDFLDIIALH		43470
HPV33	L2	279	11	PDFLDIIALHR		43471
HPV33	L2	217	8	PGSRPVAR		43472
HPV33	L2	215	10	PIGSRPVAR		43473
HPV33	L2	333	11	PLDITVPNEQY		43474
HPV33	L2	347	10	PLDITVNEQY		43475
HPV33	L2	339	11	PLDITVNEQY		43476
HPV33	L2	444	8	PNEQYELQPLH		43477
HPV33	L2	444	9	PSYFILRR		43478
HPV33	L2	444	10	PSYFILRRR		43479
HPV33	L2	444	11	PSYFILRRRR		43480
HPV33	L2	79	11	PSYFILRRRRK		43481
HPV33	L2	161	10	PTAAIPLOPIR		43482
HPV33	L2	186	8	PTFTPSVLH		43483
HPV33	L2	221	8	PTVSTQSY		43484
HPV33	L2	221	10	PVARLGLY		43485
HPV33	L2	326	11	PVARLGLYSR		43486
HPV33	L2	317	8	QDLSPIVPLDII		43487
HPV33	L2	317	9	QIGARIHY		43488
HPV33	L2	11	8	QIGARIHY		43489
HPV33	L2	455	10	RASATQLY		43490
HPV33	L2	300	8	RFPYFFTDVR		43491
HPV33	L2	313	9	RFSRVGQK		43492
HPV33	L2	313	11	RSKGQIGAR		43493
HPV33	L2	303	9	RSKGQIGARIH		43494
HPV33	L2	303	11	RVGQKATLK		43495
HPV33	L2	13	10	RVGQKATLKTR		43496
HPV33	L2	314	8	SATQLYQTCK		43497
HPV33	L2	314	10	SGKQIGAR		43498
HPV33	L2	314	11	SGKQIGARIH		43499
HPV33	L2	63	9	SGKQIGARIHY		43500
HPV33	L2	357	10	SGSGRTGY		43501
HPV33	L2	151	8	SINDGLYDVY		43502
HPV33	L2	150	9	SIQTISTH		43503
HPV33	L2	184	10	SSIQTISTH		43504
HPV33	L2	212	9	SSPTVSTQSY		43505
HPV33	L2	354	10	SSTPIGSR		43506
HPV33	L2	38	9	SSYSINDGLY		43507
HPV33	L2	38	10	STIADQILK		43508
HPV33	L2	213	8	STIADQILKY		43509
HPV33	L2	80	10	STPIGSR		43510
HPV33	L2	26	9	TAAIPLOPIR		43511
HPV33	L2	162	9	TCPPDVIPK		43512
HPV33	L2	61	8	TFTEPSVLH		43513
HPV33	L2	61	11	TGSGGGR		43514
HPV33	L2	61		TGSGGGRTGY		

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Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No
HPV33	L2	24	11	TGTCPPDVIPIK	43515
HPV33	L2	39	8	TIADQILK	43516
HPV33	L2	39	9	TIADQILKY	43517
HPV33	L2	309	8	TLKTRSGK	43518
HPV33	L2	244	9	TSPHKLITY	43519
HPV33	L2	293	8	TSRRHTVR	43520
HPV33	L2	293	11	TSRRHTVRFSR	43521
HPV33	L2	211	10	TSSTPIPGSR	43522
HPV33	L2	353	11	TSSYSINDGLY	43523
HPV33	L2	298	10	TVRFSRVGQK	43524
HPV33	L2	222	9	VARLGLYSR	43525
HPV33	L2	435	9	VDGADFLVH	43526
HPV33	L2	370	10	VDNVHTPMQH	43527
HPV33	L2	238	10	VDPAFLTSPH	43528
HPV33	L2	238	11	VDPAFLTSPHK	43529
HPV33	L2	304	8	VGQKATLK	43530
HPV33	L2	304	10	VGQKATLKTR	43531
HPV33	L2	441	10	VLHPSYFILR	43532
HPV33	L2	441	11	VLHPSYFILRR	43533
HPV33	L2	210	11	VTSSSTPIPGSR	43534
HPV33	L2	434	10	VVDGADFLVH	43535
HPV33	L2	237	11	VVDPAFLTSPH	43536
HPV33	L2	366	9	YADDVDNVH	43537
HPV33	L2	446	8	YFILRRRR	43538
HPV33	L2	446	9	YFILRRRRK	43539
HPV33	L2	446	10	YFILRRRRKR	43540
HPV33	L2	356	8	YSINDGLY	43541
HPV33	L2	356	11	YSINDGLYDVY	43542
HPV33	L2	228	9	YSRNTQQVK	43543
HPV33	L2	381	8	YSTFATTR	43544
HPV45	E1	383	11	AAFLKSNCOAK	43545
HPV45	E1	198	8	AAMLA VFK	43546
HPV45	E1	198	11	AAMLA VFKDIY	43547
HPV45	E1	384	10	AFLKSNCOAK	43548
HPV45	E1	384	11	AFLKSNCOAKY	43549
HPV45	E1	490	11	AIISFVNSNH	43550
HPV45	E1	532	11	ALDGNPISDR	43551
HPV45	E1	452	11	ALKEFLKGTPK	43552
HPV45	E1	270	9	ALLRYKCGK	43553
HPV45	E1	270	11	ALLRYKCGKNR	43554
HPV45	E1	199	10	AMLA VFKDIY	43555
HPV45	E1	512	8	AMLDDATH	43556
HPV45	E1	517	8	ATHTCWTY	43557
HPV45	E1	399	8	AVMCRHYK	43558
HPV45	E1	399	9	AVMCRHYKR	43559
HPV45	E1	398	8	CAVMCRHY	43560

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E1	398	9	CAVMCRHYK		43561
HPV45	E1	398	10	CAVMCRHYKR		43562
HPV45	E1	604	9	CFERTWSR		43563
HPV45	E1	276	10	CGKNRLTVAK		43564
HPV45	E1	297	8	CMLIEPPK		43565
HPV45	E1	297	10	CMLIEPPKLR		43566
HPV45	E1	378	10	CNSNAAAFK		43567
HPV45	E1	423	11	CSKIDEGDWR		43568
HPV45	E1	634	8	CVTGQNT		43569
HPV45	E1	78	9	DAQVLHLK		43570
HPV45	E1	78	10	DAQVLHLKR		43571
HPV45	E1	78	11	DAQVLHLKRK		43572
HPV45	E1	516	9	DATHCWTY		43573
HPV45	E1	397	8	DCAVMCRH		43574
HPV45	E1	397	9	DCAVMCRHY		43575
HPV45	E1	397	10	DCAVMCRHYK		43576
HPV45	E1	397	11	DCAVMCRHYKR		43577
HPV45	E1	377	11	DCSNAAAFK		43578
HPV45	E1	515	10	DDATHCWTY		43579
HPV45	E1	534	9	DGNPISDR		43580
HPV45	E1	534	10	DGNPISDRK		43581
HPV45	E1	534	11	DGNPISDRKH		43582
HPV45	E1	214	10	DLVRNFKSDK		43583
HPV45	E1	173	9	DNAENVDPH		43584
HPV45	E1	566	10	DNKWPLYESR		43585
HPV45	E1	623	11	DTEGIPFGTFK		43586
HPV45	E1	328	8	DTPEWIOR		43587
HPV45	E1	445	10	EFISFLRALK		43588
HPV45	E1	455	8	EFLKGTPK		43589
HPV45	E1	455	9	EFLKGTPKK		43590
HPV45	E1	242	8	EGFKTLIK		43591
HPV45	E1	625	9	EGIPFGTFK		43592
HPV45	E1	596	8	EINDKNWK		43593
HPV45	E1	115	8	EISLNSGH		43594
HPV45	E1	115	9	EISLNSGHK		43595
HPV45	E1	115	10	EISLNSGHIK		43596
HPV45	E1	186	11	ELKELQASNK		43597
HPV45	E1	189	8	ELLQASNK		43598
HPV45	E1	189	9	ELLQASNKK		43599
HPV45	E1	365	8	ESDMAFY		43600
HPV45	E1	573	11	ESRVTVFTFPH		43601
HPV45	E1	64	8	ETAQALFI		43602
HPV45	E1	295	10	ETCMLIEPPK		43603
HPV45	E1	74	10	EVQNDAQVLHI		43604
HPV45	E1	587	9	FDKNGNPVY		43605
HPV45	E1	605	8	FFERTWSR		43606

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E1	18	9	FFVETIVEK		43607
HPV45	E1	18	10	FFVETIVEKK		43608
HPV45	E1	446	9	FISFLRALK		43609
HPV45	E1	456	8	FLKGTPEKK		43610
HPV45	E1	385	9	FLKSNCQAK	0.0007	43611
HPV45	E1	385	10	FLKSNCQAKY		43612
HPV45	E1	449	10	FLRALKEFLK		43613
HPV45	E1	212	9	FTDLVRNFK		43614
HPV45	E1	579	11	FTFPHAFPFDK		43615
HPV45	E1	130	8	FTISDSGY		43616
HPV45	E1	19	8	FVETIVEK		43617
HPV45	E1	19	9	FVETIVEKK		43618
HPV45	E1	327	9	GDTPEWIQR		43619
HPV45	E1	430	11	GDWRPIVQFLR	0.0002	43620
HPV45	E1	626	8	GIPEGTFFK		43621
HPV45	E1	209	9	GLSFTDLVR	0.0025	43622
HPV45	E1	535	8	GNPISDR		43623
HPV45	E1	535	9	GNPISDRK		43624
HPV45	E1	535	10	GNPISDRKH		43625
HPV45	E1	535	11	GNPISDRKHK		43626
HPV45	E1	591	10	GNPVYEINDK		43627
HPV45	E1	459	11	GTPKKNCILLY		43628
HPV45	E1	443	9	GVEFISFLR		43629
HPV45	E1	265	9	GVLJLALLR	0.1400	43630
HPV45	E1	265	10	GVLJLALLRY		43631
HPV45	E1	265	11	GVLJLALLRYK		43632
HPV45	E1	235	11	GVNPTVAEGFK		43633
HPV45	E1	181	8	HCSITELK		43634
HPV45	E1	500	11	HPWLEPLADTK		43635
HPV45	E1	256	8	HIQCLDCK		43636
HPV45	E1	519	10	HTCWTYFDNY		43637
HPV45	E1	426	8	IDEGGDWR		43638
HPV45	E1	561	8	IDPAKDNDK		43639
HPV45	E1	561	11	IDPAKDNDKWPY		43640
HPV45	E1	491	10	IISFVNSNSH		43641
HPV45	E1	268	8	ILALLRYK		43642
HPV45	E1	268	11	ILALLRYKCGK		43643
HPV45	E1	555	11	ILLTSNIDPAK		43644
HPV45	E1	466	11	ILLYGPANTGK		43645
HPV45	E1	447	8	ISFLRALK		43646
HPV45	E1	492	9	ISFVNSNSH		43647
HPV45	E1	538	8	ISIDRKHK		43648
HPV45	E1	116	8	ISLSGHIK		43649
HPV45	E1	116	9	ISLSGHKK		43650
HPV45	E1	116	11	ISLSGHKKAK		43651
HPV45	E1	197	9	KAAMLAVFK		43652

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E1	603	10	KCFERTWSR		43653
HPV45	E1	275	11	KCGKNRLTVAK		43654
HPV45	E1	633	9	KCVTQNTNR		43655
HPV45	E1	396	8	KDCAVMCR		43656
HPV45	E1	396	9	KDCAVMCRH		43657
HPV45	E1	396	10	KDCAVMCRHY		43658
HPV45	E1	396	11	KDCAVMCRHYK		43659
HPV45	E1	565	11	KDNKWPYLESR		43660
HPV45	E1	285	8	KGLSTLLH		43661
HPV45	E1	425	9	KIDEGGDWR		43662
HPV45	E1	304	10	KLRSSVAALY		43663
HPV45	E1	278	8	KNRLTVAK		43664
HPV45	E1	600	9	KNWKCFER		43665
HPV45	E1	387	8	KSNCQAKY		43666
HPV45	E1	387	10	KSNCOAKYLYK		43667
HPV45	E1	476	10	KSYFGMSFIH		43668
HPV45	E1	245	10	KTLLKPATLY		43669
HPV45	E1	510	10	KVAMLDLDDATH		43670
HPV45	E1	269	10	LALLRYKCGK		43671
HPV45	E1	201	8	LAVFKDIY		43672
HPV45	E1	514	11	LDDATHTCWTY		43673
HPV45	E1	533	10	LDGNPISDR		43674
HPV45	E1	533	11	LDGNPISDRK		43675
HPV45	E1	129	9	LFTISDSGY		43676
HPV45	E1	299	8	LIEPPKLR		43677
HPV45	E1	247	8	LKIPATLY		43678
HPV45	E1	247	10	LKIPATLYAH		43679
HPV45	E1	267	8	LILALLRY		43680
HPV45	E1	267	9	LILALLRYK	0.1800	43681
HPV45	E1	84	11	LLKRFAGGSK		43682
HPV45	E1	190	8	LLQASNKK		43683
HPV45	E1	271	8	LLRYKCGK		43684
HPV45	E1	271	10	LLRYKCGKNR		43685
HPV45	E1	556	10	LLTSNIDPAK		43686
HPV45	E1	467	10	LLYGPANTGK		43687
HPV45	E1	118	9	LNSGHKKAK		43688
HPV45	E1	118	10	LNSGHKKAKR		43689
HPV45	E1	118	11	LNSGHKKAKRR		43690
HPV45	E1	210	8	LSFTDLVR		43691
HPV45	E1	210	11	LSFTDLVRNFK		43692
HPV45	E1	103	10	LSVDTDLSPR		43693
HPV45	E1	362	11	LTDESMAFQY		43694
HPV45	E1	557	9	LTSNIDPAK		43695
HPV45	E1	215	9	LVRNFKSDK	0.0002	43696
HPV45	E1	401	10	MCRHYKRAQK		43697
HPV45	E1	401	11	MCRHYKRAQKR		43698

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E1	200	9	MLAVFKDIY		43699
HPV45	E1	298	9	MLIEPPKLR		43700
HPV45	E1	413	8	MNMSQWIK		43701
HPV45	E1	413	9	MNMSQWIKY		43702
HPV45	E1	413	10	MNMSQWIKYR		43703
HPV45	E1	415	8	MSQWIKYR		43704
HPV45	E1	415	11	MSQWIKYRCSK		43705
HPV45	E1	154	9	NAENGGSVH		43706
HPV45	E1	174	8	NAENVDPH		43707
HPV45	E1	389	8	NCQAKYLK		43708
HPV45	E1	77	10	NDAQVLHLLK		43709
HPV45	E1	77	11	NDAQVLHLLKR		43710
HPV45	E1	598	11	NDKNWKCFFER		43711
HPV45	E1	590	11	NGNPVYEINDK		43712
HPV45	E1	560	9	NIDPAKDNK		43713
HPV45	E1	414	8	NMSQWIKY		43714
HPV45	E1	414	9	NMSQWIKYR		43715
HPV45	E1	119	8	NSGHKKAK		43716
HPV45	E1	119	9	NSGHKKAKR		43717
HPV45	E1	119	10	NSGHKKAKRR		43718
HPV45	E1	379	9	NSNAAAFJK	0.3700	43719
HPV45	E1	152	11	NTNAENGGSVH		43720
HPV45	E1	563	9	PAKDNKWPY		43721
HPV45	E1	471	8	PANTGKSY		43722
HPV45	E1	586	10	PFDKNGNPVY		43723
HPV45	E1	537	8	PISDRKH		43724
HPV45	E1	537	9	PISDRKHK		43725
HPV45	E1	434	8	PIVQFLRY		43726
HPV45	E1	238	8	PTVAEGFK		43727
HPV45	E1	593	8	PVYEINDK		43728
HPV45	E1	593	11	PVYEINDKNWK		43729
HPV45	E1	442	10	QGVFISFLR		43730
HPV45	E1	102	11	QLSVDTDLSPR		43731
HPV45	E1	412	9	QNMMSQWIK		43732
HPV45	E1	412	10	QNMMSQWIKY		43733
HPV45	E1	412	11	QNMMSQWIKYR		43734
HPV45	E1	76	8	QNDAAQVLH		43735
HPV45	E1	76	11	QNDAAQVLHLLK		43736
HPV45	E1	80	8	QVLHLLKR		43737
HPV45	E1	80	9	QVLHLLKRR		43738
HPV45	E1	451	8	RALKEFLK		43739
HPV45	E1	128	10	RLFTISDSGY		43740
HPV45	E1	112	11	RLQEISLNSGH		43741
HPV45	E1	306	8	RSSVAALY		43742
HPV45	E1	306	10	RSSVAALYWY		43743
HPV45	E1	306	11	RSSVAALYWYR		43744

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E1	608	9	RTWSRLDLH		43745
HPV45	E1	575	9	RVTVTFPH		43746
HPV45	E1	172	10	SDNAENVDPH		43747
HPV45	E1	448	11	SFLRALKEFLK		43748
HPV45	E1	211	10	SFTDLVRNFK		43749
HPV45	E1	493	8	SFVNSNSH		43750
HPV45	E1	326	10	SGDTPEWIQR		43751
HPV45	E1	120	8	SGHKAKR		43752
HPV45	E1	120	9	SGHKAKRR		43753
HPV45	E1	117	8	SLNSGHKK		43754
HPV45	E1	117	10	SLNSGHKKAK		43755
HPV45	E1	117	11	SLNSGHKKAKR		43756
HPV45	E1	380	8	SNAAAFLLK		43757
HPV45	E1	388	9	SNCQAKYLK		43758
HPV45	E1	559	10	SNIDPAKDNK		43759
HPV45	E1	171	11	SSDNAENVDPH		43760
HPV45	E1	307	9	SSVAALYWY		43761
HPV45	E1	307	10	SSVAALYWYR		43762
HPV45	E1	308	8	SVAALYWY		43763
HPV45	E1	308	9	SVAALYWYR		43764
HPV45	E1	104	9	SVDTDLSR	8.8000	43765
HPV45	E1	296	9	TCMLIEPPK		43766
HPV45	E1	296	11	TCMLIEPPKLK		43767
HPV45	E1	520	9	TCWTFYFDNY		43768
HPV45	E1	520	11	TCWTFYFDNYMR		43769
HPV45	E1	363	10	TDESDMAFQY		43770
HPV45	E1	213	8	TDLVRNFK		43771
HPV45	E1	213	11	TDLVRNFKSDK		43772
HPV45	E1	631	11	TFKCVTGQNTK		43773
HPV45	E1	580	10	TFPHAFPFDK		43774
HPV45	E1	246	9	TLIKPATLY		43775
HPV45	E1	246	11	TLIKPATLYAH		43776
HPV45	E1	153	10	TNAENGGSVH		43777
HPV45	E1	558	8	TSNIDPAK		43778
HPV45	E1	558	11	TSNIDPAKDNK		43779
HPV45	E1	239	11	TVAEGFKTLIK		43780
HPV45	E1	282	11	TVAKGLSTLLH		43781
HPV45	E1	309	8	VAALYWYR		43782
HPV45	E1	240	10	VAEGFKTLIK		43783
HPV45	E1	283	10	VAKGLSTLLH		43784
HPV45	E1	511	9	VAMLDDATH		43785
HPV45	E1	178	11	VDPHCSITELK		43786
HPV45	E1	105	8	VDTDLSR		43787
HPV45	E1	81	8	VLIILKRR		43788
HPV45	E1	266	8	VLIILALLR		43789
HPV45	E1	266	9	VLIILALLRY		43790

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E1	266	10	VLIALRYK		43791
HPV45	E1	400	8	VMCRHYKR		43792
HPV45	E1	400	11	VMCRHYKRAQK		43793
HPV45	E1	236	10	VNPTVAEGFK		43794
HPV45	E1	325	11	VSGDTPEWIQR		43795
HPV45	E1	576	8	VTVTFPH		43796
HPV45	E1	17	10	WFFVETIVEK		43797
HPV45	E1	17	11	WFFVETIVEKK		43798
HPV45	E1	264	10	WGVILALLR		43799
HPV45	E1	264	11	WGVILALLRY		43800
HPV45	E1	418	8	WIKYRCSK		43801
HPV45	E1	332	10	WIORLTIQH		43802
HPV45	E1	502	9	WLEPLADTK		43803
HPV45	E1	522	9	WTFYFDNYMR		43804
HPV45	E1	254	10	YAHIQCLDCK		43805
HPV45	E1	478	8	YFGMSFIH		43806
HPV45	E1	208	10	YGLSFTDLVR		43807
HPV45	E1	469	8	YGPANTGK		43808
HPV45	E1	469	10	YGPANTGKSY		43809
HPV45	E1	394	10	YKDCAVMCR		43810
HPV45	E1	394	11	YKDCAVMCRH		43811
HPV45	E2	156	10	AACVSYWGVY		43812
HPV45	E2	156	11	AACVSYWGVYY		43813
HPV45	E2	157	9	ACVSYWGVY		43814
HPV45	E2	157	10	ACVSYWGVYY		43815
HPV45	E2	78	9	AIELQMALK		43816
HPV45	E2	47	9	AILFTAREH		43817
HPV45	E2	84	9	ALKGLAQSK		43818
HPV45	E2	84	10	ALKGLAQSKY		43819
HPV45	E2	16	9	ALQDKILDH		43820
HPV45	E2	16	10	ALQDKILDHY		43821
HPV45	E2	234	9	ASVGTPKPH		43822
HPV45	E2	216	10	ATQIVRQLQH		43823
HPV45	E2	115	10	CFKKGKGVH		43824
HPV45	E2	254	8	CGLTEQHII		43825
HPV45	E2	254	10	CGLTEQHHR		43826
HPV45	E2	305	8	CLRYRLRK		43827
HPV45	E2	305	9	CLRYRLRKY		43828
HPV45	E2	134	11	CMNYVVWDSIY		43829
HPV45	E2	286	10	CSGNTTPIH		43830
HPV45	E2	274	8	CSSTSNNK		43831
HPV45	E2	274	9	CSSTSNNKR		43832
HPV45	E2	274	10	CSSTSNNKRR		43833
HPV45	E2	274	11	CSSTSNNKRRK		43834
HPV45	E2	158	8	CVSYWGVY		43835
HPV45	E2	158	9	CVSYWGVYY		43836

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E2	158	11	CVSYWGVYYIK		43837
HPV45	E2	211	11	DDTSATQIVR		43838
HPV45	E2	169	11	DGDTYYVQFK		43839
HPV45	E2	128	10	DGNKDNCMNY		43840
HPV45	E2	31	8	DINSQISY		43841
HPV45	E2	28	11	DSKDINSQISY		43842
HPV45	E2	171	9	DTYYVQFK		43843
HPV45	E2	212	10	DTVSATQIVR		43844
HPV45	E2	45	9	ENAILFTAR		43845
HPV45	E2	45	11	ENAILFTAREH		43846
HPV45	E2	127	11	FDGNKDNCMNY		43847
HPV45	E2	50	10	FTAREHGITK		43848
HPV45	E2	298	10	GDKNLSKCLR		43849
HPV45	E2	298	11	GDKNLSKCLR		43850
HPV45	E2	170	10	GDTYYVQFK		43851
HPV45	E2	119	8	GGKTVHVV		43852
HPV45	E2	255	9	GLTEQHHR		43853
HPV45	E2	129	9	GNKDNCMNY		43854
HPV45	E2	186	10	GNSTWEVQY		43855
HPV45	E2	288	8	GNTPIIH		43856
HPV45	E2	288	10	GNTPIIHLK		43857
HPV45	E2	225	8	HASTSTPK		43858
HPV45	E2	55	8	HGITKLNH		43859
HPV45	E2	261	9	HGRVNTVH		43860
HPV45	E2	242	8	HIQTPATK		43861
HPV45	E2	242	9	HIQTPATKR		43862
HPV45	E2	242	11	HIQTPATKRPR		43863
HPV45	E2	295	10	HLKGDKNLSK		43864
HPV45	E2	124	8	HVYFDGNK		43865
HPV45	E2	293	8	IHLKGDK		43866
HPV45	E2	21	10	ILDHYENDSK		43867
HPV45	E2	48	8	ILFTAREH		43868
HPV45	E2	68	9	INISKSAH		43869
HPV45	E2	68	10	INISKSAIHK		43870
HPV45	E2	70	8	ISKSKAIHK		43871
HPV45	E2	36	8	ISYWQLIR		43872
HPV45	E2	146	9	ITETGIWDK		43873
HPV45	E2	77	10	KAIELQMAK		43874
HPV45	E2	304	8	KCLRYRLR		43875
HPV45	E2	304	9	KCLRYRLRK		43876
HPV45	E2	304	10	KCLRYRLRKY		43877
HPV45	E2	168	8	KDGDTTY		43878
HPV45	E2	30	9	KDINSQISY		43879
HPV45	E2	297	8	KGDKNSLK		43880
HPV45	E2	297	11	KGDKNSLKCLR		43881
HPV45	E2	118	9	KGKTVHVV		43882

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E2	86	8	KGLAQSKY		43883
HPV45	E2	20	11	KILDIYENDSK		43884
HPV45	E2	300	8	KNSLKCLR		43885
HPV45	E2	300	9	KNSLKCLRY		43886
HPV45	E2	300	10	KNSLKCLRYR		43887
HPV45	E2	331	10	KNTGILTVTY		43888
HPV45	E2	154	8	KTAACVSY		43889
HPV45	E2	232	9	KTASVGTTPK		43890
HPV45	E2	232	11	KTASVGTTPKPH		43891
HPV45	E2	121	11	KTIVHYVFDGNK		43892
HPV45	E2	273	9	LCSSTSNK		43893
HPV45	E2	273	10	LCSSTSNKR		43894
HPV45	E2	273	11	LCSSTSNKRR		43895
HPV45	E2	22	9	LDHYENDSK		43896
HPV45	E2	49	11	LFTAREHIGITK		43897
HPV45	E2	272	10	LCSSTSNK		43898
HPV45	E2	272	11	LCSSTSNKR		43899
HPV45	E2	14	11	LSALQDKILDH		43900
HPV45	E2	10	11	LSERLSALQDK		43901
HPV45	E2	256	8	LTEQHHGR		43902
HPV45	E2	336	11	LTVYNSEVQR		43903
HPV45	E2	83	10	MALKGLAQSK		43904
HPV45	E2	83	11	MALKGLAQSKY		43905
HPV45	E2	135	10	MNYVVWDSIY		43906
HPV45	E2	135	11	MNYVVWDSIYY		43907
HPV45	E2	46	8	NAILFTAR		43908
HPV45	E2	46	10	NAILFTAREH		43909
HPV45	E2	69	8	NISKSKAH		43910
HPV45	E2	69	9	NISKSKAHK		43911
HPV45	E2	301	8	NSLKCLRY		43912
HPV45	E2	301	9	NSLKCLRYR		43913
HPV45	E2	301	11	NSLKCLRYRLR		43914
HPV45	E2	187	9	NSNTWEVQY		43915
HPV45	E2	33	11	NSQISYWQLIR		43916
HPV45	E2	357	9	NSVQISVGY		43917
HPV45	E2	109	9	NTEPQCFC		43918
HPV45	E2	109	10	NTEPQCFCFK		43919
HPV45	E2	332	9	NTGILTVTY		43920
HPV45	E2	289	9	NTTPIHLK		43921
HPV45	E2	292	9	PIHLKGDK		43922
HPV45	E2	67	8	PINISKS		43923
HPV45	E2	67	10	PINISSKAH		43924
HPV45	E2	67	11	PINISSKAHK		43925
HPV45	E2	271	11	PLCSSTSNK		43926
HPV45	E2	356	10	PNSVQISVGY		43927
HPV45	E2	112	10	PSQCFCFKGK		43928

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E2	114	8	QCFKKGK		43929
HPV45	E2	114	11	QCFKKGKTVH		43930
HPV45	E2	253	8	QCGLTEQH		43931
HPV45	E2	253	9	QCGLTEQHH		43932
HPV45	E2	253	11	QCGLTEQHHGR		43933
HPV45	E2	18	8	QDKILDHY		43934
HPV45	E2	177	8	QFKSECEK		43935
HPV45	E2	177	9	QFKSECEKY		43936
HPV45	E2	35	9	QISYWQLIR		43937
HPV45	E2	218	8	QIVRLQII		43938
HPV45	E2	222	11	QLQHASTSTPK		43939
HPV45	E2	82	11	QMALKGLAQSK		43940
HPV45	E2	244	9	QTPATKRPR		43941
HPV45	E2	4	10	QTPKESLSER		43942
HPV45	E2	63	10	QVVPINISK		43943
HPV45	E2	43	11	RLENAILFTAR		43944
HPV45	E2	309	8	RLRKYADH		43945
HPV45	E2	309	9	RLRKYADHY		43946
HPV45	E2	13	8	RLSALQDK		43947
HPV45	E2	15	10	SALQDKILDH		43948
HPV45	E2	15	11	SALQDKILDHY		43949
HPV45	E2	215	11	SATQIVRQLQH		43950
HPV45	E2	287	9	SGNTTPIIH		43951
HPV45	E2	287	11	SGNTTPIHLK		43952
HPV45	E2	302	8	SLKCLRYR		43953
HPV45	E2	302	10	SLKCLRYRLR		43954
HPV45	E2	302	11	SLKCLRYRLRK		43955
HPV45	E2	188	8	SNTWEVQY		43956
HPV45	E2	275	8	SSTSNNKR		43957
HPV45	E2	275	9	SSTSNNKRR		43958
HPV45	E2	275	10	SSTSNNKRRK		43959
HPV45	E2	321	11	SSTWHWTGCNK		43960
HPV45	E2	276	8	STSNKKRR		43961
HPV45	E2	276	9	STSNKKRRK		43962
HPV45	E2	322	10	STWHWTGCNK		43963
HPV45	E2	235	8	SVGTPKPII		43964
HPV45	E2	358	8	SVQISVGY		43965
HPV45	E2	155	11	TAAACVSYWGVY		43966
HPV45	E2	51	9	TAREHGITK		43967
HPV45	E2	233	8	TASVGTPK		43968
HPV45	E2	233	10	TASVGTPKPH		43969
HPV45	E2	333	8	TGILTVTY		43970
HPV45	E2	277	8	TSNNKKRR		43971
HPV45	E2	290	8	TTPIHLK		43972
HPV45	E2	290	11	TTPIHLKGDK		43973
HPV45	E2	172	8	TTYVYQFK		43974

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E2	122	10	TVHVYFDGKN		43975
HPV45	E2	213	9	TVSATQIVR		43976
HPV45	E2	337	10	TVTYNSEVQR		43977
HPV45	E2	285	11	VCSGNTTPIIH		43978
HPV45	E2	214	8	VSATQIVR		43979
HPV45	E2	159	8	VSYWGVVY		43980
HPV45	E2	159	10	VSYWGVVYIK		43981
HPV45	E2	338	9	VTYNSEVQR		43982
HPV45	E2	64	9	VVPPINISK		43983
HPV45	E2	64	11	VVPPINISKSK		43984
HPV45	E2	138	8	VVWDSIY		43985
HPV45	E2	152	10	WDKTAACVSY		43986
HPV45	E2	108	10	WNTPSQCFFK		43987
HPV45	E2	108	11	WNTPSQCFFK		43988
HPV45	E2	185	11	YGNSTWVQY		43989
HPV45	E2	166	9	YIKDGDITY		43990
HPV45	E2	166	10	YIKDGDITY		43991
HPV45	E2	145	10	YITETGIWDK		43992
HPV45	E2	317	9	YSEISSTWH		43993
HPV45	E2	175	10	YVQFKSECEK		43994
HPV45	E2	175	11	YVQFKSECEKY		43995
HPV45	E2	137	8	YVWVDSIY		43996
HPV45	E2	137	9	YVWVDSIY		43997
HPV45	E6	63	10	AACHKCIDFY		43998
HPV45	E6	64	9	ACHKCIDFY		43999
HPV45	E6	31	11	ACHKCIDFYSR		44000
HPV45	E6	48	11	ACVYCKATLER		44001
HPV45	E6	48	9	AFKDLFIVY		44002
HPV45	E6	48	10	AFKDLFIVYR		44003
HPV45	E6	37	9	ATLERTVY		44004
HPV45	E6	141	9	CCDQARQER		44005
HPV45	E6	141	11	CCDQARQERLR		44006
HPV45	E6	142	8	CDQARQER		44007
HPV45	E6	142	10	CDQARQERLR		44008
HPV45	E6	142	11	CDQARQERLRR		44009
HPV45	E6	59	8	CIAYAACH		44010
HPV45	E6	59	9	CIAYAACHK		44011
HPV45	E6	68	9	CIDFYSRIR	0.0001	44012
HPV45	E6	138	9	CNTCCDQAR		44013
HPV45	E6	32	10	CVYCKATLER		44014
HPV45	E6	58	9	DCIAYAACH		44015
HPV45	E6	58	10	DCIAYAACHK		44016
HPV45	E6	5	8	DDPTQRPY		44017
HPV45	E6	5	9	DDPTQRPYK		44018
HPV45	E6	70	10	DFYSRIREL	0.0001	44019
HPV45	E6	70	11	DFYSRIRELRY		44020

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E6	27	8	DVSIACVY		44021
HPV45	E6	27	10	DVSIACVYCK		44022
HPV45	E6	77	10	ELRYYSNSVY		44023
HPV45	E6	97	8	ELYNLLIR		44024
HPV45	E6	97	11	ELYNLLIRCLR		44025
HPV45	E6	43	8	EYQFAFK		44026
HPV45	E6	47	10	FAFKDLFIVY		44027
HPV45	E6	47	11	FAFKDLFIVYR		44028
HPV45	E6	4	9	FDDPTQRPY		44029
HPV45	E6	4	10	FDDPTQRPYK		44030
HPV45	E6	53	10	FIVYRDCIAY		44031
HPV45	E6	120	9	HLKDKRRFH		44032
HPV45	E6	128	8	HSIAGQYR		44033
HPV45	E6	60	8	IAYAACHK		44034
HPV45	E6	69	8	IDFYSRIR		44035
HPV45	E6	69	11	IDFYSRIRELR		44036
HPV45	E6	54	9	IVYRDCIAY		44037
HPV45	E6	36	10	KATLERTEVY		44038
HPV45	E6	67	8	KCIDFYSR		44039
HPV45	E6	67	10	KCIDFYSRIR		44040
HPV45	E6	50	8	KDLFIVYR		44041
HPV45	E6	92	8	KITNTELY		44042
HPV45	E6	52	11	LFIVYRDCIAY		44043
HPV45	E6	102	9	LIRCLRCQK	0.0012	44044
HPV45	E6	101	10	LLIRCLRCQK	0.1200	44045
HPV45	E6	112	8	LNPAEKRR		44046
HPV45	E6	112	9	LNPAEKRRH		44047
HPV45	E6	112	11	LNPAEKRRHLK		44048
HPV45	E6	1	10	MAREDDPTQR		44049
HPV45	E6	100	8	NLLIRCLR		44050
HPV45	E6	100	11	NLLIRCLRCQK		44051
HPV45	E6	83	10	NSVYGETLEK		44052
HPV45	E6	139	8	NTCCDQAR		44053
HPV45	E6	139	11	NTCCDQARQER		44054
HPV45	E6	95	10	NTELYNLLIR		44055
HPV45	E6	114	9	PAEKRRHLK		44056
HPV45	E6	114	11	PAEKRRHLKDK		44057
HPV45	E6	111	8	PLNPAEKR		44058
HPV45	E6	111	9	PLNPAEKRR		44059
HPV45	E6	111	10	PLNPAEKRRH		44060
HPV45	E6	144	8	QARQERLR		44061
HPV45	E6	144	9	QARQERLRR		44062
HPV45	E6	144	10	QARQERLRRR		44063
HPV45	E6	144	11	QARQERLRRRR		44064
HPV45	E6	137	10	QCNTCCDQAR		44065
HPV45	E6	26	9	QDVSIACVY		44066

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E6	26	11	QDVSACVYCK		44067
HPV45	E6	46	11	QFAFKDLFIVY		44068
HPV45	E6	107	11	RCQKPLNPAEK		44069
HPV45	E6	57	10	RDCIAYAAACH		44070
HPV45	E6	57	11	RDCIAYAACHK		44071
HPV45	E6	3	8	RFDDPTQR		44072
HPV45	E6	3	10	RFDDPTQRPY		44073
HPV45	E6	3	11	RFDDPTQRPYK		44074
HPV45	E6	126	9	RFHSIAGQY		44075
HPV45	E6	126	10	RFHSIAGQYR		44076
HPV45	E6	74	8	RRELRY		44077
HPV45	E6	41	10	RTEVYQFAFK		44078
HPV45	E6	29	8	SIACVYCK		44079
HPV45	E6	24	11	SLQDVSACVY		44080
HPV45	E6	82	11	SNVYGETLEK		44081
HPV45	E6	84	9	SVYGETLEK		44082
HPV45	E6	140	10	TCCDQARQER		44083
HPV45	E6	89	11	TLEKITNTELY		44084
HPV45	E6	38	8	TLERTEVY		44085
HPV45	E6	94	11	TNTELYNLLIR		44086
HPV45	E6	28	9	VSIACVYCK		44087
HPV45	E6	62	11	YAACHKCIDFY		44088
HPV45	E6	34	8	YCKATLER		44089
HPV45	E6	99	9	YNLLIRCLR		44090
HPV45	E6	72	8	YSRIRELR		44091
HPV45	E6	72	9	YSRIRELRY		44092
HPV45	E6	72	10	YSRIRELRY		44093
HPV45	E7	6	9	ATLQEIVLH		44094
HPV45	E7	64	9	CVCKCKDGR		44095
HPV45	E7	43	11	DGVSHIAQLPAR		44096
HPV45	E7	20	10	ELDPVDLLCY		44097
HPV45	E7	38	10	ENDEADGVSH		44098
HPV45	E7	78	8	ESSADDLR		44099
HPV45	E7	44	10	GVSHIAQLPAR		44100
HPV45	E7	44	11	GVSHIAQLPARR		44101
HPV45	E7	47	8	IIAQLPARR		44102
HPV45	E7	62	11	ILCVCKCKDGR		44103
HPV45	E7	61	8	KILCVCK		44104
HPV45	E7	63	10	LCVCKCKDGR		44105
HPV45	E7	21	9	LDPVDLLCY		44106
HPV45	E7	75	11	LTVESSADDLR		44107
HPV45	E7	39	9	NDEADGVSH		44108
HPV45	E7	51	9	PARRAEPQR		44109
HPV45	E7	51	10	PARRAEPQRH		44110
HPV45	E7	51	11	PARRAEPQRUIK		44111
HPV45	E7	49	11	QLPARRAEPQR		44112

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	E7	54	8	RAEPQRHK		44113
HPV45	E7	5	10	RATLQEIVLH		44114
HPV45	E7	7	8	TLQEIVLH		44115
HPV45	E7	76	10	TVSSADDLR		44116
HPV45	E7	65	8	VCKCKDGR		44117
HPV45	E7	45	9	VSHAQLPAR		44118
HPV45	E7	45	10	VSHAQLPARR		44119
HPV45	L1	517	9	AASTSTASR		44120
HPV45	L1	161	11	AATAVITQDVR		44121
HPV45	L1	128	9	ACVGMEIGR		44122
HPV45	L1	83	9	AGNKQAVPK		44123
HPV45	L1	191	8	AIGEHWAK		44124
HPV45	L1	28	11	ALWRPSDSTVY		44125
HPV45	L1	234	11	AMDFSTLQDTK		44126
HPV45	L1	523	9	ASRPKRVR		44127
HPV45	L1	523	11	ASRPKRVRIR		44128
HPV45	L1	375	11	ASTQNPVPNTY		44129
HPV45	L1	518	8	ASTSTASR		44130
HPV45	L1	518	11	ASTSTASRPK		44131
HPV45	L1	162	10	ATAVITQDVR		44132
HPV45	L1	164	8	AVITQDVR		44133
HPV45	L1	88	8	AVPKVSAY		44134
HPV45	L1	88	10	AVPKVSAYQY		44135
HPV45	L1	88	11	AVPKVSAYQYR		44136
HPV45	L1	276	10	CLRREQLFAR		44137
HPV45	L1	276	11	CLRREQLFARII		44138
HPV45	L1	129	8	CVGMEIGR		44139
HPV45	L1	188	8	CVPAIGE		44140
HPV45	L1	188	11	CVPAIGEHWAK		44141
HPV45	L1	211	8	DCPPLK		44142
HPV45	L1	51	11	DDYVSRSTIFY		44143
HPV45	L1	236	9	DFSTLQDTK		44144
HPV45	L1	224	9	DGDMVDTGY		44145
HPV45	L1	250	8	DICQICK		44146
HPV45	L1	250	9	DICQICKY		44147
HPV45	L1	488	9	DLQYPLGR		44148
HPV45	L1	488	10	DLQYPLGRK		44149
HPV45	L1	172	8	DNVVDYK		44150
HPV45	L1	271	8	DSMFFCLR		44151
HPV45	L1	271	9	DSMFFCLRR		44152
HPV45	L1	332	9	DSQFNKPY		44153
HPV45	L1	114	11	DSTYNPETQR		44154
HPV45	L1	461	11	DTTPEKQDPY		44155
HPV45	L1	296	8	DTVPTDLY		44156
HPV45	L1	296	10	DTVPTDLYIK		44157
HPV45	L1	169	10	DVRDNVSVDY		44158

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L1	169	11	DVRDNVSVDYK		44159
HPV45	L1	223	10	EDGDMVDTG		44160
HPV45	L1	313	8	ETPGSCVY		44161
HPV45	L1	283	8	FARHFWNR		44162
HPV45	L1	275	11	FCLRRQLFAR		44163
HPV45	L1	110	9	FGLPDSITY		44164
HPV45	L1	24	8	FLQMALWR		44165
HPV45	L1	498	8	FLVQAGLR		44166
HPV45	L1	498	9	FLVQAGLRR		44167
HPV45	L1	498	10	FLVQAGLRRR		44168
HPV45	L1	336	8	FNKPYWLH		44169
HPV45	L1	336	9	FNKPYWLHK		44170
HPV45	L1	485	8	FSSDLQY		44171
HPV45	L1	237	8	FSTLQDTK		44172
HPV45	L1	450	11	FVQSVAVTCQK		44173
HPV45	L1	359	9	FVTVDVTR		44174
HPV45	L1	82	10	GAGNKQAVPK		44175
HPV45	L1	187	9	GCVPAIGE		44176
HPV45	L1	210	9	GDCPPLEK		44177
HPV45	L1	225	8	GDMVDTG		44178
HPV45	L1	270	9	GDSMFFCLR		44179
HPV45	L1	270	10	GDSMFFCLRR		44180
HPV45	L1	295	9	GDTVPTDLY		44181
HPV45	L1	295	11	GDTVPTDLYIK		44182
HPV45	L1	141	10	GIGLSGHPFY		44183
HPV45	L1	111	8	GLPDSITY		44184
HPV45	L1	503	11	GLRRRTIGPR		44185
HPV45	L1	143	8	GLSGHPFY		44186
HPV45	L1	143	10	GLSGHPFYNK		44187
HPV45	L1	84	8	GNKQAVPK		44188
HPV45	L1	9	8	HGIIIFLK		44189
HPV45	L1	348	8	HNNGICWH		44190
HPV45	L1	251	8	ICQSICKY		44191
HPV45	L1	251	11	ICQSICKYPPDY		44192
HPV45	L1	23	9	IFLQMALWR		44193
HPV45	L1	59	9	IFYHAGSSR		44194
HPV45	L1	142	9	IGLSGHPFY		44195
HPV45	L1	142	11	IGLSGHPFYNK		44196
HPV45	L1	185	11	ILGCVPAIGE		44197
HPV45	L1	411	10	ITLTAEVMSY		44198
HPV45	L1	328	11	ITTSDSQLFNK		44199
HPV45	L1	460	8	KDITTPPEK		44200
HPV45	L1	109	10	KFGLPDSITY		44201
HPV45	L1	389	8	KFKHYSRH		44202
HPV45	L1	497	9	KFLVQAGLR		44203
HPV45	L1	497	10	KFLVQAGLRR		44204

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L1	497	11	KFLVQAGLRRR		44205
HPV45	L1	484	9	KFSSDLQY		44206
HPV45	L1	475	8	KFWTVDLK		44207
HPV45	L1	475	10	KFWTVDLKEK		44208
HPV45	L1	305	8	KGTSANMR		44209
HPV45	L1	152	9	KLDDTESAH		44210
HPV45	L1	473	10	KLKFWTVDLK		44211
HPV45	L1	91	8	KVSAYQYR		44212
HPV45	L1	91	11	KVSAYQYRVFR		44213
HPV45	L1	153	8	LDDTESAH		44214
HPV45	L1	249	9	LDICQSICK		44215
HPV45	L1	249	10	LDICQSICKY		44216
HPV45	L1	489	8	LDQYPLGR		44217
HPV45	L1	489	9	LDQYPLGRK		44218
HPV45	L1	282	9	LFARHFWNR		44219
HPV45	L1	335	9	LFNKPYWLH		44220
HPV45	L1	335	10	LFNKPYWLHK		44221
HPV45	L1	358	10	LFVTVVDTR		44222
HPV45	L1	186	10	LGCVPAIGEH		44223
HPV45	L1	140	8	LGIGLSGH		44224
HPV45	L1	140	11	LGIGLSGHPFY		44225
HPV45	L1	68	8	LLTVGNPY		44226
HPV45	L1	68	10	LLTVGNPYFR		44227
HPV45	L1	144	9	LSGHPFYNK		44228
HPV45	L1	413	8	LTAEVMSY		44229
HPV45	L1	413	10	LTAEVMSYIH		44230
HPV45	L1	69	9	LTVGNPYFR		44231
HPV45	L1	499	8	LVQAGLRR		44232
HPV45	L1	499	9	LVQAGLRRR		44233
HPV45	L1	1	9	MAHNIYGH		44234
HPV45	L1	235	10	MDFTLQDTK		44235
HPV45	L1	294	10	MGDTVPTDLY		44236
HPV45	L1	310	11	NMRETPGSCVY		44237
HPV45	L1	49	8	NTDDYVSR		44238
HPV45	L1	383	9	NTYDPTKFK		44239
HPV45	L1	383	10	NTYDPTKFKH		44240
HPV45	L1	383	11	NTYDPTKFKIHY		44241
HPV45	L1	516	10	PAASTSTASR		44242
HPV45	L1	190	9	PAIGEHWAK		44243
HPV45	L1	526	8	PAKRVIR		44244
HPV45	L1	526	10	PAKRVIRRSK		44245
HPV45	L1	526	11	PAKRVIRRSKK		44246
HPV45	L1	259	11	PDYLQMSADPY		44247
HPV45	L1	209	10	PGDCPPLELK		44248
HPV45	L1	22	10	PIFLQMALWR		44249
HPV45	L1	248	10	PLDICQSICK		44250

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L1	248	11	PLDICQSICKY		44251
HPV45	L1	139	9	PLGIGLSGH		44252
HPV45	L1	382	8	PNTYDPTK		44253
HPV45	L1	382	10	PNTYDPTKFK		44254
HPV45	L1	382	11	PNTYDPTKFKH		44255
HPV45	L1	508	8	PTIGPRKR		44256
HPV45	L1	387	9	PTKFKHYSR		44257
HPV45	L1	387	10	PTKFKHYSRH		44258
HPV45	L1	440	9	PTTSLVDY		44259
HPV45	L1	440	10	PTTSLVDYR		44260
HPV45	L1	380	10	PVPNTYDPTK		44261
HPV45	L1	87	9	QAVPKVSAY		44262
HPV45	L1	87	11	QAVPKVSAYQY		44263
HPV45	L1	468	8	QDPYDKLK		44264
HPV45	L1	168	11	QDVRDNVSVDY		44265
HPV45	L1	346	10	QGHNNGICWH		44266
HPV45	L1	281	10	QLFARHFWNR		44267
HPV45	L1	334	10	QLFNKPYWLH		44268
HPV45	L1	334	11	QLFNKPYWLHK		44269
HPV45	L1	357	11	QLFVTVVDITR		44270
HPV45	L1	378	8	QNPVPNTY		44271
HPV45	L1	253	9	QSICKYPDY		44272
HPV45	L1	452	9	QSVAVTCQK		44273
HPV45	L1	171	8	RDNVSVDY		44274
HPV45	L1	171	9	RDNVSVDYK		44275
HPV45	L1	67	9	RLLTVGNPY		44276
HPV45	L1	67	11	RLLTVGNPYFR		44277
HPV45	L1	101	9	RVALPDPNK		44278
HPV45	L1	529	8	RVIRSKK		44279
HPV45	L1	46	8	RVNTDDY		44280
HPV45	L1	46	11	RVNTDDYVSR		44281
HPV45	L1	77	10	RVVPSGAGNK		44282
HPV45	L1	93	9	SAYQYRVFR		44283
HPV45	L1	487	10	SDLDDYPLGR		44284
HPV45	L1	487	11	SDLDDYPLGRK		44285
HPV45	L1	331	8	SDSQLFNK		44286
HPV45	L1	331	10	SDSQLFNKPY		44287
HPV45	L1	81	11	SGAGNKQAVPK		44288
HPV45	L1	145	8	SGHFPYFK		44289
HPV45	L1	254	8	SICKYPDY		44290
HPV45	L1	58	10	SIFYHAGSSR		44291
HPV45	L1	272	8	SMFFCLRR		44292
HPV45	L1	486	11	SSDLDDYPLGR		44293
HPV45	L1	65	11	SSRLTLVGNPY		44294
HPV45	L1	521	8	STASRPAC		44295
HPV45	L1	521	9	STASRPACR		44296

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L1	521	11	STASRPAKRVR		44297
HPV45	L1	115	10	STIYNPETQR		44298
HPV45	L1	376	10	STQNPVPNTY		44299
HPV45	L1	519	10	STSTASRPAK		44300
HPV45	L1	519	11	STSTASRPAKR		44301
HPV45	L1	43	11	SVARVNTDDY		44302
HPV45	L1	453	8	SVAVTCQK		44303
HPV45	L1	414	9	TAEVMSYIH		44304
HPV45	L1	522	8	TASRPAKR		44305
HPV45	L1	522	10	TASRPAKRVR		44306
HPV45	L1	163	9	TAVITQDVR		44307
HPV45	L1	457	11	TCQKDTTPEK		44308
HPV45	L1	410	11	TITLTAEVMSY		44309
HPV45	L1	116	9	TIYNPETQR		44310
HPV45	L1	412	9	TLTAEVMSY		44311
HPV45	L1	412	11	TLTAEVMSYIH		44312
HPV45	L1	330	9	TSDSQLFNK		44313
HPV45	L1	330	11	TSDSQLFNKPY		44314
HPV45	L1	57	11	TSIFYHAGSSR		44315
HPV45	L1	442	8	TSLVDTYR		44316
HPV45	L1	520	9	TSTASRPAK		44317
HPV45	L1	520	10	TSTASRPAKR		44318
HPV45	L1	462	10	TTPPEKQDPY		44319
HPV45	L1	329	10	TTSDSQLFNK		44320
HPV45	L1	441	8	TTSLVDTY		44321
HPV45	L1	441	9	TTSLVDTYR		44322
HPV45	L1	70	8	TVGNPYFR		44323
HPV45	L1	297	9	TVPTDLYIK		44324
HPV45	L1	36	11	TVYLPSPSVAR		44325
HPV45	L1	102	8	VALPDPNK		44326
HPV45	L1	44	10	VARVNTDDY		44327
HPV45	L1	99	11	VFRVALPDPNK		44328
HPV45	L1	293	11	VMGDTVPTDLY		44329
HPV45	L1	48	9	VNTDDYVSR		44330
HPV45	L1	92	10	VSAYQYRVFR		44331
HPV45	L1	54	8	VSRTSIFY		44332
HPV45	L1	54	9	VSRTSIFYH		44333
HPV45	L1	360	8	VTVDTR		44334
HPV45	L1	47	10	VVNTDDYVSR		44335
HPV45	L1	78	9	VVPSGAGNK		44336
HPV45	L1	127	10	WACVGMEIGR		44337
HPV45	L1	196	8	WAKGTLCK		44338
HPV45	L1	341	8	WLIKAQGH		44339
HPV45	L1	477	8	WTVDLKEK		44340
HPV45	L1	385	8	YDPTKFKH		44341
HPV45	L1	385	9	YDPTKFKHY		44342

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV45	L1	385	11	YDPTFKHYSR	44343
HPV45	L1	269	10	YGDSMFFCLR	44344
HPV45	L1	269	11	YGDSMFFCLR	44345
HPV45	L1	7	10	YGHGHIIFLK	44346
HPV45	L1	303	10	YIKGTSANMR	44347
HPV45	L1	38	9	YLPSPSVAR	44348
HPV45	L1	261	9	YLQMSADPY	44349
HPV45	L1	150	11	YNKLDDTESAH	44350
HPV45	L1	393	8	YSRHVEEY	44351
HPV45	L1	53	9	YVSRTSIFY	44352
HPV45	L1	53	10	YVSRTSIFYH	44353
HPV45	L2	286	10	ALSSRRGTVR	44354
HPV45	L2	12	8	ASATDLYR	44355
HPV45	L2	12	11	ASATDLYRTCK	44356
HPV45	L2	357	9	ASTTPSTIH	44357
HPV45	L2	357	10	ASTTPSTIHK	44358
HPV45	L2	423	10	ASTTYIGIH	44359
HPV45	L2	14	9	ATDLYRTCK	44360
HPV45	L2	303	9	ATMFTRSGK	44361
HPV45	L2	340	11	ATNDSDLFDVY	44362
HPV45	L2	275	9	DFMDIIRLIH	44363
HPV45	L2	275	10	DFMDIIRLIH	44364
HPV45	L2	273	9	DSEFMDIIR	44365
HPV45	L2	273	11	DSEFMDIIRLH	44366
HPV45	L2	343	8	DSDLFDVY	44367
HPV45	L2	36	8	EGTTLADK	44368
HPV45	L2	276	8	FMDIIRLIH	44369
HPV45	L2	276	9	FMDIIRLIH	44370
HPV45	L2	306	11	FTRSGKQIGGR	44371
HPV45	L2	181	10	FVGTPTSOSH	44372
HPV45	L2	314	8	GGRVHFYH	44373
HPV45	L2	58	11	GIGTSGSGGR	44374
HPV45	L2	430	8	GIHGTYYY	44375
HPV45	L2	64	8	GSGGRGTG	44376
HPV45	L2	62	10	GSGSGGRTGY	44377
HPV45	L2	25	10	GTCPDVK	44378
HPV45	L2	60	9	GTGSGSGGR	44379
HPV45	L2	183	8	GTPTSOSH	44380
HPV45	L2	183	10	GTPTSOSHGY	44381
HPV45	L2	433	10	GTQYYLWPWY	44382
HPV45	L2	433	11	GTQYYLWPWY	44383
HPV45	L2	292	11	GTVRFSLGQR	44384
HPV45	L2	432	11	HGTQYYLWPWY	44385
HPV45	L2	180	11	IFVGTPTSOSH	44386
HPV45	L2	313	8	IGGRVHFY	44387
HPV45	L2	313	9	IGGRVHFYH	44388

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L2	429	8	IGIHGTQY		44389
HPV45	L2	429	9	IGIHGTQYY		44390
HPV45	L2	59	10	IGTSGSGGR		44391
HPV45	L2	210	10	ISSTPLPTVR		44392
HPV45	L2	210	11	ISSTPLPTVRR		44393
HPV45	L2	366	8	KSFTYPKY		44394
HPV45	L2	34	10	KVEGTLADK		44395
HPV45	L2	299	10	LQQRATMFTR		44396
HPV45	L2	287	9	LSSRRGTVR		44397
HPV45	L2	375	11	LTMPSTAASSY		44398
HPV45	L2	392	10	LTSAWDVPIY		44399
HPV45	L2	248	9	LVTFDNPAY		44400
HPV45	L2	277	8	MDIIRLIR		44401
HPV45	L2	1	8	MVSHRAAR		44402
HPV45	L2	1	9	MVSHRAARR		44403
HPV45	L2	1	10	MVSHRAARRK		44404
HPV45	L2	1	11	MVSHRAARRKR		44405
HPV45	L2	422	11	NASTTTYIGIH		44406
HPV45	L2	342	9	NDSDLFDVY		44407
HPV45	L2	79	10	NTVVDVGPTR		44408
HPV45	L2	285	11	PALSSRRGTVR		44409
HPV45	L2	356	10	PASTTPSTIH		44410
HPV45	L2	356	11	PASTTPSTHKK		44411
HPV45	L2	404	8	PDILPSH		44412
HPV45	L2	272	10	PDSDFMDIIR		44413
HPV45	L2	209	11	PISSTPLPTVR		44414
HPV45	L2	214	9	PLPTVRRVR		44415
HPV45	L2	391	11	PLTSAWDVPIY		44416
HPV45	L2	378	8	PSTAASSY		44417
HPV45	L2	361	10	PSTHKSFTY		44418
HPV45	L2	420	9	PTNASTTTY		44419
HPV45	L2	185	8	PTSGSHGY		44420
HPV45	L2	216	10	PTVRRVRGPR		44421
HPV45	L2	312	9	QIGGRVHFY		44422
HPV45	L2	312	10	QIGGRVHFYH		44423
HPV45	L2	11	8	RASATDLY		44424
HPV45	L2	11	9	RASATDLYR		44425
HPV45	L2	302	10	RATMFTRSGK		44426
HPV45	L2	295	8	RFSRLGQR		44427
HPV45	L2	222	8	RGPRLYSR		44428
HPV45	L2	291	8	RGTVRFSR		44429
HPV45	L2	298	11	RLGQRATMFTR		44430
HPV45	L2	281	10	RLIIRPALSSR		44431
HPV45	L2	281	11	RLIIRPALSSRR		44432
HPV45	L2	225	11	RLYSRANQQVR		44433
HPV45	L2	308	9	RSGKQIGGR		44434

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L2	308	11	RSQKQIGGRVH		44435
HPV45	L2	68	10	RTGYVPLGGR		44436
HPV45	L2	220	8	RVRGPRLY		44437
HPV45	L2	220	10	RVRGPRLYSR		44438
HPV45	L2	235	10	RVSTSQLTH		44439
HPV45	L2	13	10	SATDLYRTCK		44440
HPV45	L2	394	8	SAWDVPIY		44441
HPV45	L2	274	8	SDFMDIIR		44442
HPV45	L2	274	10	SDFMDIIRLH		44443
HPV45	L2	274	11	SDFMDIIRLHR		44444
HPV45	L2	309	8	SGKQIGGR		44445
HPV45	L2	309	10	SGKQIGGRVH		44446
HPV45	L2	63	9	SGSGRTGY		44447
HPV45	L2	24	11	SGTCTPDVINK		44448
HPV45	L2	247	10	SLVTEDNPAY		44449
HPV45	L2	78	11	SNTVVDVGPTR		44450
HPV45	L2	246	11	SSLVTEDNPAY		44451
HPV45	L2	288	8	SSRRGTVR		44452
HPV45	L2	288	11	SSRRGTVRFSR		44453
HPV45	L2	211	9	SSTPLPTVR		44454
HPV45	L2	211	10	SSTPLPTVRR		44455
HPV45	L2	362	9	STHKSTY		44456
HPV45	L2	362	11	STHKSTYPK		44457
HPV45	L2	212	8	STPLPTVR		44458
HPV45	L2	212	9	STPLPTVRR		44459
HPV45	L2	212	11	STPLPTVRRVR		44460
HPV45	L2	237	8	STSQFLTH		44461
HPV45	L2	358	8	STTPSTIH		44462
HPV45	L2	358	9	STTPSTIHK		44463
HPV45	L2	424	9	STTYIGH		44464
HPV45	L2	26	9	TCPPDVINK		44465
HPV45	L2	15	8	TDLYRTCK		44466
HPV45	L2	402	10	TGPDILPSII		44467
HPV45	L2	61	8	TGSGSGGR		44468
HPV45	L2	61	11	TGSGSGGRTGY		44469
HPV45	L2	69	9	TGYVPLGGR		44470
HPV45	L2	363	8	THKSFTY		44471
HPV45	L2	363	10	THKSFTYPK		44472
HPV45	L2	363	11	THKSFTYPKY		44473
HPV45	L2	304	8	TMFTRSGK		44474
HPV45	L2	376	10	TMPTAAASY		44475
HPV45	L2	421	8	TNASTTTY		44476
HPV45	L2	341	10	TNDSLDFVY		44477
HPV45	L2	393	9	TSAWDVPIY		44478
HPV45	L2	418	11	TSPTNASTTTY		44479
HPV45	L2	359	8	TTPSTIHK		44480

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV45	L2	425	8	TTYIGIH		44481
HPV45	L2	426	11	TTYIGHGTQY		44482
HPV45	L2	293	10	TVRFSRLGQR		44483
HPV45	L2	217	9	TVRRVRGPR		44484
HPV45	L2	217	11	TVRRVRGPRLY		44485
HPV45	L2	80	9	TVVDVGPTR		44486
HPV45	L2	182	9	VGTPTSQSH		44487
HPV45	L2	182	11	VGTPTSQSHGY		44488
HPV45	L2	2	8	VSHRAARR		44489
HPV45	L2	2	9	VSHRAARRK		44490
HPV45	L2	2	10	VSHRAARRKR		44491
HPV45	L2	236	9	VSTSQFLTH		44492
HPV45	L2	249	8	VTFDNPAY		44493
HPV45	L2	81	8	VVDVGPTR		44494
HPV45	L2	444	8	YFPKKRRK		44495
HPV45	L2	444	11	YFPKKRRKIPY		44496
HPV45	L2	428	9	YIGHGTQY		44497
HPV45	L2	428	10	YIGHGTQYY		44498
HPV45	L2	437	8	YLPWYYY		44499
HPV45	L2	437	11	YLPWYYYFPPK		44500
HPV45	L2	227	9	YSRANQQVR		44501
HPV45	L2	401	11	YTGPDILPSH		44502
HPV56	E2	177	9	AAVSIIRPGK		44503
HPV56	E2	177	10	AAVSHIRPGKR		44504
HPV56	E2	21	10	ALESSTTIY		44505
HPV56	E2	178	8	AVSHRPGK		44506
HPV56	E2	178	9	AVSHRPGKR		44507
HPV56	E2	178	11	AVSHRPGKRPR		44508
HPV56	E2	249	8	CCRYRFQK		44509
HPV56	E2	249	9	CCRYRFQKY		44510
HPV56	E2	249	10	CCRYRFQKYK		44511
HPV56	E2	52	8	CFKKEGQH		44512
HPV56	E2	4	8	CLQVCKAK		44513
HPV56	E2	71	8	CMQYVAWK		44514
HPV56	E2	71	9	CMQYVAWKY		44515
HPV56	E2	71	11	CMQYVAWKYIY		44516
HPV56	E2	92	10	CSGVDYRGY		44517
HPV56	E2	92	11	CSGVDYRGYY		44518
HPV56	E2	176	10	DAAVSHIRPGK		44519
HPV56	E2	176	11	DAAVSHIRPGKR		44520
HPV56	E2	113	8	DFQEAKK		44521
HPV56	E2	65	10	DGSKNNCMQY		44522
HPV56	E2	215	8	DNTDSR		44523
HPV56	E2	195	9	DSSRESHAK		44524
HPV56	E2	140	8	DSVSSTCR		44525
HPV56	E2	140	9	DSVSSTCRY		44526

Table XVII
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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	E2	213	8	DTDNTDSR		44527
HPV56	E2	213	10	DTDNTDSRSR		44528
HPV56	E2	117	8	EAKKFGCK		44529
HPV56	E2	193	9	EFDSSRESH		44530
HPV56	E2	193	11	EFDSSRESHAK		44531
HPV56	E2	43	8	ELWLTEPK		44532
HPV56	E2	43	9	ELWLTEPKK		44533
HPV56	E2	191	8	ESEFDSSR		44534
HPV56	E2	191	11	ESEFDSSRESH		44535
HPV56	E2	199	10	ESHAKCVTTH		44536
HPV56	E2	23	8	ESLSTIY		44537
HPV56	E2	288	10	ETORNSFLSH		44538
HPV56	E2	154	9	ETVNEYNTI		44539
HPV56	E2	154	10	ETVNEYNTHK		44540
HPV56	E2	128	10	EVHMENESIY		44541
HPV56	E2	61	8	EVWFDGSK		44542
HPV56	E2	64	11	FDGSKNNCMQY		44543
HPV56	E2	194	8	FDSSRESH		44544
HPV56	E2	194	10	FDSSRESHAK		44545
HPV56	E2	121	10	FGCKNIWEVH		44546
HPV56	E2	294	11	FLSHVKIPVY		44547
HPV56	E2	261	8	FVDVTSTY		44548
HPV56	E2	261	9	FVDVTSTYH		44549
HPV56	E2	122	9	GCKNIWEVH		44550
HPV56	E2	231	9	GDKTTPVVH		44551
HPV56	E2	231	11	GDKTTPVVHLK		44552
HPV56	E2	99	9	GIYVVDGH		44553
HPV56	E2	99	10	GIYVVDGHK		44554
HPV56	E2	173	9	GNQDAAVSII		44555
HPV56	E2	173	10	GNQDAAVSHR		44556
HPV56	E2	66	9	GSKNNCMQY		44557
HPV56	E2	94	8	GVYRGIY		44558
HPV56	E2	94	9	GVYRGIYH		44559
HPV56	E2	94	11	GVYRGIYVH		44560
HPV56	E2	201	8	HAKCVTTH		44561
HPV56	E2	201	10	HAKCVTTHH		44562
HPV56	E2	104	8	HDGHIKTY		44563
HPV56	E2	59	10	HIEVWFDGSK		44564
HPV56	E2	210	11	HISDTNTDSR		44565
HPV56	E2	239	8	HLKGEPIR		44566
HPV56	E2	239	10	HLKGEPIRLK		44567
HPV56	E2	130	8	HMENESIY		44568
HPV56	E2	297	8	HVKIPVY		44569
HPV56	E2	297	9	HVKIPVYR		44570
HPV56	E2	20	11	IAESLSTIY		44571
HPV56	E2	283	9	IYKDETQR		44572

Seq. Id. No.

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. id. No.
HPV56	E2	224	10	INNNIIPGDK	44573
HPV56	E2	211	10	ISDTNTDSR	44574
HPV56	E2	281	11	ITIIYKDETR	44575
HPV56	E2	248	10	KCCRYRFQK	44576
HPV56	E2	248	10	KCCRYRFQY	44577
HPV56	E2	248	11	KCCRYRFQYK	44578
HPV56	E2	51	9	KCFKKEGQH	44579
HPV56	E2	203	8	KCVTTIITH	44580
HPV56	E2	120	11	KFGCKNIWEVI	44581
HPV56	E2	241	8	KGEPNRLK	44582
HPV56	E2	241	11	KGEPNRLKCCR	44583
HPV56	E2	68	11	KNNCMQYVAWK	44584
HPV56	E2	276	10	KNYSIITHY	44585
HPV56	E2	276	11	KNYSIITHYK	44586
HPV56	E2	258	11	KTLFVDVTSTY	44587
HPV56	E2	233	9	KTPVVIHLK	44588
HPV56	E2	90	8	KVCSGVDY	44589
HPV56	E2	90	9	KVCSGVDYR	44590
HPV56	E2	260	9	LFVDVTSTY	44591
HPV56	E2	260	10	LFVDVTSTYH	44592
HPV56	E2	295	10	LSHVKIPVY	44593
HPV56	E2	295	11	LSHVKIPVYR	44594
HPV56	E2	46	9	LTEPKKCFK	44595
HPV56	E2	46	10	LTEPKKCFKK	44596
HPV56	E2	1	9	MVPCLOVCK	44597
HPV56	E2	1	11	MVPCLOVCKAK	44598
HPV56	E2	70	9	NCMQYVAWK	44599
HPV56	E2	70	10	NCMQYVAWKY	44600
HPV56	E2	83	8	NGDCGWQK	44601
HPV56	E2	69	10	NNCMQYVAWK	44602
HPV56	E2	69	11	NNCMQYVAWKY	44603
HPV56	E2	31	8	NNEWTLR	44604
HPV56	E2	226	8	NNNHPGDK	44605
HPV56	E2	225	9	NNNNHPGDK	44606
HPV56	E2	292	8	NSFLSHVK	44607
HPV56	E2	149	11	NVSPVETVNEY	44608
HPV56	E2	3	9	PCLQVCKAK	44609
HPV56	E2	139	9	PDSVSSTCR	44610
HPV56	E2	139	10	PDSVSSTCRY	44611
HPV56	E2	230	10	PGDKTTPVVH	44612
HPV56	E2	183	8	PGKRRLR	44613
HPV56	E2	244	8	PNRLKCCR	44614
HPV56	E2	244	9	PNRLKCCRY	44615
HPV56	E2	244	10	PNRLKCCRYR	44616
HPV56	E2	152	8	PVETVNEY	44617
HPV56	E2	152	11	PVETVNEYNTH	44618

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	E2	236	11	PVVHLKGEPNR		44619
HPV56	E2	301	10	PVYRLVWDK		44620
HPV56	E2	175	8	QDAAVSHR		44621
HPV56	E2	175	11	QDAAVSHRPGK		44622
HPV56	E2	98	10	RGIYYVHDGH		44623
HPV56	E2	98	11	RGIYYVHDGHK		44624
HPV56	E2	246	8	RLKCCRYR		44625
HPV56	E2	246	11	RLKCCRYRFQK		44626
HPV56	E2	188	11	RLRESEFDSSR		44627
HPV56	E2	291	9	RNSFLSHVK		44628
HPV56	E2	222	8	RSINNNNH		44629
HPV56	E2	220	10	RSRSINNNNH		44630
HPV56	E2	212	9	SDTDNTDSR		44631
HPV56	E2	212	11	SDTDNTDSRSR		44632
HPV56	E2	93	9	SGVDYRGIY		44633
HPV56	E2	93	10	SGVDYRGIYY		44634
HPV56	E2	279	8	SITHYK		44635
HPV56	E2	223	11	SINNNHPGDK		44636
HPV56	E2	196	8	SSRESHAK		44637
HPV56	E2	266	11	STYHWTSIDNK		44638
HPV56	E2	171	11	SVGNQDAAVSH		44639
HPV56	E2	141	8	SVSSTCRY		44640
HPV56	E2	40	11	TCEELWLTEPK		44641
HPV56	E2	112	8	TDFEQEAK		44642
HPV56	E2	112	9	TDFEQEAKK		44643
HPV56	E2	214	9	TDNTDSRSR		44644
HPV56	E2	282	10	TIYKDETQR		44645
HPV56	E2	28	11	TIYNNEEWTLR		44646
HPV56	E2	259	10	TLFVDVTSTY		44647
HPV56	E2	259	11	TLFVDVTSTYH		44648
HPV56	E2	271	8	TSTDKNY		44649
HPV56	E2	234	8	TPPVVHLK		44650
HPV56	E2	155	8	TVNEYNTH		44651
HPV56	E2	155	9	TVNEYNTHK		44652
HPV56	E2	75	8	VAWKYIYY		44653
HPV56	E2	91	8	VCSGVDYR		44654
HPV56	E2	91	11	VCSGVDYRGIY		44655
HPV56	E2	262	8	VDVTSTYH		44656
HPV56	E2	95	8	VDYRGIYY		44657
HPV56	E2	95	10	VDYRGIYYVH		44658
HPV56	E2	172	10	VGNQDAAVSH		44659
HPV56	E2	172	11	VGNQDAAVSHR		44660
HPV56	E2	156	8	VNEYNTHK		44661
HPV56	E2	179	8	VSHRPGKR		44662
HPV56	E2	179	10	VSHRPGKRPR		44663
HPV56	E2	150	10	VSPVETVNEY		44664

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	E2	237	10	VVHLKGEPIR		44665
HPV56	E2	302	9	VVYRLVWDK		44666
HPV56	E2	45	10	WLTEPKKCFK		44667
HPV56	E2	45	11	WLTEPKKCFKK		44668
HPV56	E2	270	9	WTSTDKNY		44669
HPV56	E2	137	11	YCPDSVSSTCR		44670
HPV56	E2	82	9	YNGDCGWQK		44671
HPV56	E2	30	9	YNNEEWTLR		44672
HPV56	E2	278	8	YSIITIY		44673
HPV56	E2	278	9	YSIITIYK		44674
HPV56	E2	111	9	YTDFEQEAQ		44675
HPV56	E2	111	10	YTDFEQEAQK		44676
HPV56	E2	74	8	YVAWKYIY		44677
HPV56	E2	74	9	YVAWKYIYY		44678
HPV56	E2	102	9	YVHDGHKTY		44679
HPV56	E2	102	10	YVHDGHKTY		44680
HPV56	E6	49	9	ACTELKLVY		44681
HPV56	E6	49	10	ACTELKLVYR		44682
HPV56	E6	89	8	ATLESITK		44683
HPV56	E6	89	9	ATLESITKK		44684
HPV56	E6	64	10	AVCRVCLLFY		44685
HPV56	E6	100	8	CDLLRCY		44686
HPV56	E6	100	9	CDLLRCYR		44687
HPV56	E6	122	8	CDKRRFH		44688
HPV56	E6	139	10	CLGCWRQTSR		44689
HPV56	E6	69	9	CLLFYSKVR		44690
HPV56	E6	69	10	CLLFYSKVRK		44691
HPV56	E6	69	11	CLLFYSKVRKY		44692
HPV56	E6	50	8	CTELKLVY		44693
HPV56	E6	50	9	CTELKLVYR		44694
HPV56	E6	33	10	CVYCKKELTR		44695
HPV56	E6	59	9	DDPYAVCR		44696
HPV56	E6	60	8	DDPYAVCR		44697
HPV56	E6	101	8	DLIRCYR		44698
HPV56	E6	28	8	DLRLSCVY		44699
HPV56	E6	28	10	DLRLSCVYCK		44700
HPV56	E6	28	11	DLRLSCVYCKK		44701
HPV56	E6	23	8	EIPLIDLR		44702
HPV56	E6	39	8	ELTRAEVY		44703
HPV56	E6	20	11	EVLEIPLIDLR		44704
HPV56	E6	44	11	EVYNFACTELK		44705
HPV56	E6	48	10	FACTELKLVY		44706
HPV56	E6	48	11	FACTELKLVYR		44707
HPV56	E6	5	9	FNNQERPR		44708
HPV56	E6	88	9	GATLESITK		44709
HPV56	E6	88	10	GATLESITKK		44710

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	E6	141	8	GCWRQTSR		44711
HPV56	E6	141	11	GCWRQTSREPR		44712
HPV56	E6	137	8	GSCLGWR		44713
HPV56	E6	121	9	HCDRKRFRH		44714
HPV56	E6	27	9	IDLRSCVY		44715
HPV56	E6	27	11	IDLRSCVYCK		44716
HPV56	E6	54	10	KLVRDDFPY		44717
HPV56	E6	75	8	KVRKYRY		44718
HPV56	E6	75	10	KVRKYRYDY		44719
HPV56	E6	99	9	LCDLLRCY		44720
HPV56	E6	99	10	LCDLLRCYR		44721
HPV56	E6	71	8	LFYSKVRK		44722
HPV56	E6	71	9	LFYSKVRKY		44723
HPV56	E6	71	10	LFYSKVRKYR		44724
HPV56	E6	71	11	LFYSKVRKYRY		44725
HPV56	E6	140	9	LGCWRQTSR		44726
HPV56	E6	26	10	LIDRLSCVY		44727
HPV56	E6	70	8	LLFYSKVR		44728
HPV56	E6	70	9	LLFYSKVRK		44729
HPV56	E6	70	10	LLFYSKVRKY		44730
HPV56	E6	70	11	LLFYSKVRKYR		44731
HPV56	E6	31	8	LSCVYCKK		44732
HPV56	E6	113	9	LTPEEKQLH		44733
HPV56	E6	55	9	LVYRDDFPY		44734
HPV56	E6	47	8	NFACTELK		44735
HPV56	E6	47	11	NFACTELKLVY		44736
HPV56	E6	6	8	NNQERPR		44737
HPV56	E6	6	11	NNQERPRSLH		44738
HPV56	E6	25	11	PLIDRLSCVY		44739
HPV56	E6	112	10	PLTPEEKQLH		44740
HPV56	E6	4	8	QFNNPQER		44741
HPV56	E6	4	10	QFNNPQERPR		44742
HPV56	E6	98	8	QLCDLLIR		44743
HPV56	E6	98	10	QLCDLLIRCY		44744
HPV56	E6	98	11	QLCDLLIRCYR		44745
HPV56	E6	119	8	QLHCDRKR		44746
HPV56	E6	119	9	QLHCDRKR		44747
HPV56	E6	119	11	QLHCDRKRFRH		44748
HPV56	E6	110	9	QSPLTPEEK		44749
HPV56	E6	108	11	RQSPLTPEEK		44750
HPV56	E6	58	10	RDDFPYAVCR		44751
HPV56	E6	30	8	RLSCVYCK		44752
HPV56	E6	30	9	RLSCVYCKK		44753
HPV56	E6	67	9	RVCLLFYSK		44754
HPV56	E6	67	11	RVCLLFYSKVR		44755
HPV56	E6	138	11	SCLGWRQTSR		44756

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	E6	32	11	SCVYCKKELTR		44757
HPV56	E6	136	9	TGSCLCGWR		44758
HPV56	E6	90	8	TLESITKK		44759
HPV56	E6	68	8	VCLLFYSK		44760
HPV56	E6	68	10	VCLLFYSKVR		44761
HPV56	E6	68	11	VCLLFYSKVRK		44762
HPV56	E6	65	9	VCRVCLLFY		44763
HPV56	E6	65	11	VCRVCLLFYSK		44764
HPV56	E6	21	10	VLEIPLIDL		44765
HPV56	E6	135	10	WTGSCLCGWR		44766
HPV56	E6	63	11	YAVCRVCLLFY		44767
HPV56	E6	35	8	YCKKELTR		44768
HPV56	E6	87	10	YGATLESITK		44769
HPV56	E6	87	11	YGATLESITKK		44770
HPV56	E6	46	9	YNFACTELK		44771
HPV56	E6	73	8	YSKVRKYR		44772
HPV56	E6	73	9	YSKVRKYRY		44773
HPV56	E6	73	10	YSKVRKYRYR		44774
HPV56	E7	75	10	DIQSTKEDLR		44775
HPV56	E7	33	10	EDEDEVDH		44776
HPV56	E7	35	8	EDEDEVDH		44777
HPV56	E7	37	10	EDEVHDLQER		44778
HPV56	E7	39	8	EVDHLQER		44779
HPV56	E7	70	11	FVVQLDIQSTK		44780
HPV56	E7	42	10	ILQERPOQAR		44781
HPV56	E7	62	8	HVPCCECK		44782
HPV56	E7	74	11	LDIQTKECLR		44783
HPV56	E7	60	10	LIHVPCCECK		44784
HPV56	E7	52	8	QAKQHTCY		44785
HPV56	E7	52	11	QAKQHTCYLIH		44786
HPV56	E7	49	8	QARQAKQH		44787
HPV56	E7	49	11	QARQAKQHTCY		44788
HPV56	E7	73	8	QLDIQSTK		44789
HPV56	E7	77	8	QSTKEDLR		44790
HPV56	E7	71	10	VVQLDIQSTK		44791
HPV56	E7	59	11	YLIHVPCCECK		44792
HPV56	L1	135	9	ACVGLEVGR		44793
HPV56	L1	273	11	ADAYGDSMWFY		44794
HPV56	L1	149	11	AGLSGHPLFNR		44795
HPV56	L1	72	11	AGSRLAVGH		44796
HPV56	L1	241	11	AMDFKVLQESK		44797
HPV56	L1	198	8	AMGEHWTK		44798
HPV56	L1	169	10	ANNVIEDSR		44799
HPV56	L1	58	8	ATDSYVVR		44800
HPV56	L1	381	8	ATEQLSKY		44801
HPV56	L1	381	11	ATEQLSKYDAR		44802

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L1	444	8	ATSLDKY		44803
HPV56	L1	444	9	ATSLDKYR		44804
HPV56	L1	444	10	ATSLDKYRY		44805
HPV56	L1	37	9	ATWRPSENK		44806
HPV56	L1	37	11	ATWRPSENKVY		44807
HPV56	L1	512	8	AVATSKKR		44808
HPV56	L1	79	11	AVGHPYYSVTK		44809
HPV56	L1	195	8	CTPAMGEH		44810
HPV56	L1	195	11	CTPAMGEHWTK		44811
HPV56	L1	136	8	CVGLEVGR		44812
HPV56	L1	389	8	DARKINQY		44813
HPV56	L1	389	10	DARKINQYLR		44814
HPV56	L1	389	11	DARKINQYLRH		44815
HPV56	L1	274	10	DAYGDSMWFY		44816
HPV56	L1	243	9	DEKVLQESK		44817
HPV56	L1	257	8	DIVQSTCK		44818
HPV56	L1	257	9	DIVQSTCKY		44819
HPV56	L1	491	9	DLDDQFPLGR		44820
HPV56	L1	491	10	DLDDQFPLGRK		44821
HPV56	L1	179	8	DNISVDGK		44822
HPV56	L1	90	9	DNTKTNIPK		44823
HPV56	L1	278	8	DSMWFYLR		44824
HPV56	L1	278	9	DSMWFYLR		44825
HPV56	L1	176	11	DSRDNISVDGK		44826
HPV56	L1	60	11	DSYVKRTSIFY		44827
HPV56	L1	236	10	DTGFGAMDFK		44828
HPV56	L1	121	11	DTNINPDQER		44829
HPV56	L1	337	9	EAQLFNKPY		44830
HPV56	L1	448	8	EDKYRYVR		44831
HPV56	L1	404	10	ELQVFQLCK		44832
HPV56	L1	308	10	ELYLKGSNGR		44833
HPV56	L1	303	8	ETIPAELY		44834
HPV56	L1	303	10	ETIPAELYLK		44835
HPV56	L1	290	8	FARHYFNR		44836
HPV56	L1	290	11	FARHYFNRAKG		44837
HPV56	L1	117	9	FGLPDTNIY		44838
HPV56	L1	501	8	FLMQLGTR		44839
HPV56	L1	501	10	FLMQLGTRSK		44840
HPV56	L1	33	8	FLQMATWR		44841
HPV56	L1	341	9	FNKPYWLQR		44842
HPV56	L1	364	9	FVTVDITR		44843
HPV56	L1	194	9	GCTPAMGEH		44844
HPV56	L1	277	9	GDSMWFYLR		44845
HPV56	L1	277	10	GDSMWFYLR		44846
HPV56	L1	238	8	GFGAMDFK		44847
HPV56	L1	118	8	GLPDTNIY		44848

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A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L1	150	10	GLSGHPLFNR		44849
HPV56	L1	73	10	GSSRLAVGH		44850
HPV56	L1	235	11	IDTGFAMDFK		44851
HPV56	L1	32	9	IFLQMATWR		44852
HPV56	L1	68	9	IFYHAGSSR		44853
HPV56	L1	393	11	INQYLRHVEEY		44854
HPV56	L1	378	10	ISTATEQLSK		44855
HPV56	L1	378	11	ISTATEQLSKY		44856
HPV56	L1	414	10	ITLSAEVMAY		44857
HPV56	L1	334	10	ITSEAQLFNK		44858
HPV56	L1	192	11	IVGCTPAMGEH		44859
HPV56	L1	258	8	IVQSTCKY		44860
HPV56	L1	258	11	IVQSTCKYPDY		44861
HPV56	L1	89	10	KDNTKTNIK		44862
HPV56	L1	116	10	KFGLPDTNIY		44863
HPV56	L1	500	9	KFLMQLGTR		44864
HPV56	L1	500	11	KFLMQLGTRSK		44865
HPV56	L1	392	8	KINQYLRH		44866
HPV56	L1	413	11	KITLSAEVMAY		44867
HPV56	L1	93	10	KTNIKVSAY		44868
HPV56	L1	300	11	KVGETIPAEY		44869
HPV56	L1	98	8	KVSAYQYR		44870
HPV56	L1	98	11	KVSAYQYRVFR		44871
HPV56	L1	55	8	KVATDSY		44872
HPV56	L1	55	10	KVATDSYVK		44873
HPV56	L1	55	11	KVATDSYVKR		44874
HPV56	L1	45	11	KVYLPPTPVSK		44875
HPV56	L1	168	11	LANNNVIEDSR		44876
HPV56	L1	78	8	LAVGHPY		44877
HPV56	L1	256	9	LDIVQSTCK		44878
HPV56	L1	256	10	LDIVQSTCKY		44879
HPV56	L1	492	8	LDQFPLGR		44880
HPV56	L1	492	9	LDQFPLGRK		44881
HPV56	L1	289	9	LFARHYFNR		44882
HPV56	L1	340	10	LFNKPYWLQR		44883
HPV56	L1	363	10	LFVTVDITR		44884
HPV56	L1	147	8	LGAGLSGH		44885
HPV56	L1	77	8	LLAVGHPY		44886
HPV56	L1	77	9	LLAVGHPY		44887
HPV56	L1	502	9	LMQLGTRSK		44888
HPV56	L1	416	8	LSAEVMAY		44889
HPV56	L1	416	10	LSAEVMAYLH		44890
HPV56	L1	151	9	LSGHPLFNR		44891
HPV56	L1	385	8	LSKYDARK		44892
HPV56	L1	36	10	MATWRPSENK		44893
HPV56	L1	242	10	MDFKVLQESK		44894

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L1	333	11	MITSEAQLFNK		44895
HPV56	L1	2	8	MLPMMYIY		44896
HPV56	L1	2	9	MLPMMYIYR		44897
HPV56	L1	1	9	MMLPMMYIY		44898
HPV56	L1	1	10	MMLPMMYIYR		44899
HPV56	L1	5	11	MMYIYRDPPLH		44900
HPV56	L1	315	11	NGREPPSSVY		44901
HPV56	L1	95	8	NIPKVSAY		44902
HPV56	L1	95	10	NIPKVSAYQY		44903
HPV56	L1	95	11	NIPKVSAYQYR		44904
HPV56	L1	123	9	NIYNPDQER		44905
HPV56	L1	170	9	NNVIEDSR		44906
HPV56	L1	171	8	NNVIEDSR		44907
HPV56	L1	91	8	NTKTNIK		44908
HPV56	L1	197	9	PAMGEHWTK		44909
HPV56	L1	511	8	PAVATSKK		44910
HPV56	L1	511	9	PAVATSKKR		44911
HPV56	L1	266	11	PDYLKMSADAY		44912
HPV56	L1	31	10	PIFLQMATWR		44913
HPV56	L1	255	10	PLDIVQSTCK		44914
HPV56	L1	255	11	PLDIVQSTCKY		44915
HPV56	L1	146	9	PLGAGLSGH		44916
HPV56	L1	467	10	PTEKQDPLAK		44917
HPV56	L1	467	11	PTEKQDPLAKY		44918
HPV56	L1	522	9	PTSTSTPAK		44919
HPV56	L1	522	10	PTSTSTPAKR		44920
HPV56	L1	522	11	PTSTSTPAKRK		44921
HPV56	L1	442	9	PVATSLDK		44922
HPV56	L1	442	10	PVATSLDKY		44923
HPV56	L1	442	11	PVATSLDKYR		44924
HPV56	L1	52	11	PVSKVVATDSY		44925
HPV56	L1	471	8	QDPLAKYK		44926
HPV56	L1	406	8	QVFQLCK		44927
HPV56	L1	288	10	QLFARIYFNR		44928
HPV56	L1	339	11	QLFNKPYWLQR		44929
HPV56	L1	362	11	QLFVTVDTR		44930
HPV56	L1	384	8	QLSKYDAR		44931
HPV56	L1	384	9	QLSKYDARK		44932
HPV56	L1	35	11	QMATWRPSENK		44933
HPV56	L1	260	9	QSTCKYPDY		44934
HPV56	L1	260	11	QSTCKYPDYLK		44935
HPV56	L1	178	9	RDNISVDGK		44936
HPV56	L1	76	9	RLAVGHPY		44937
HPV56	L1	76	10	RLAVGHPYY		44938
HPV56	L1	508	10	RSKPAVATSK		44939
HPV56	L1	508	11	RSKPAVATSKK		44940

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L1	455	9	RSTAITCQR		44941
HPV56	L1	108	9	RVRLDPNK		44942
HPV56	L1	417	9	SAEVMAYLH		44943
HPV56	L1	520	11	SAPTSTSTPAK		44944
HPV56	L1	100	9	SAYQYRVER		44945
HPV56	L1	100	11	SAYQYRVERVR		44946
HPV56	L1	152	8	SGHPLFNR		44947
HPV56	L1	67	10	SIFYHAGSSR		44948
HPV56	L1	446	8	SLEDKYRY		44949
HPV56	L1	446	10	SLEDKYRYVR		44950
HPV56	L1	279	8	SMWFYLR		44951
HPV56	L1	74	9	SSRLAVGH		44952
HPV56	L1	74	11	SSRLAVGHYP		44953
HPV56	L1	456	8	STAITCQR		44954
HPV56	L1	379	9	STATEQLSK		44955
HPV56	L1	379	10	STATEQLSKY		44956
HPV56	L1	261	8	STCKYPDY		44957
HPV56	L1	261	10	STCKYPDYLK		44958
HPV56	L1	489	11	STDLDQFPLGR		44959
HPV56	L1	526	8	STPAKRKR		44960
HPV56	L1	526	9	STPAKRKR		44961
HPV56	L1	524	8	STSTPAKR		44962
HPV56	L1	524	9	STSTPAKRK		44963
HPV56	L1	524	10	STSTPAKRKR		44964
HPV56	L1	524	11	STSTPAKRKR		44965
HPV56	L1	86	8	SVTKDNTK		44966
HPV56	L1	380	8	TATEQLSK		44967
HPV56	L1	380	9	TATEQLSKY		44968
HPV56	L1	262	9	TCQYPDYLK		44969
HPV56	L1	460	11	TCQREQPTTEK		44970
HPV56	L1	490	10	TDLDQFPLGR		44971
HPV56	L1	490	11	TDLDQFPLGRK		44972
HPV56	L1	237	9	TGFGAMDFK		44973
HPV56	L1	304	9	TIPAELYK		44974
HPV56	L1	377	11	TISTATEQLSK		44975
HPV56	L1	415	9	TLSAEVMAY		44976
HPV56	L1	415	11	TLSAEVMAYLH		44977
HPV56	L1	94	9	TNIPKVSAY		44978
HPV56	L1	94	11	TNIPKVSAYQY		44979
HPV56	L1	122	10	TNIYNPDQER		44980
HPV56	L1	335	9	TSEAQLFENK		44981
HPV56	L1	335	11	TSEAQLFNKPY		44982
HPV56	L1	66	11	TSIFYIHAGSSR		44983
HPV56	L1	445	8	TSLEDKYR		44984
HPV56	L1	445	9	TSLEDKYRY		44985
HPV56	L1	445	11	TSLEDKYRYVR		44986

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Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L1	525	8	TSTPAKRK		44987
HPV56	L1	525	9	TSTPAKRKR		44988
HPV56	L1	525	10	TSTPAKRKR		44989
HPV56	L1	523	8	TSTTPAK		44990
HPV56	L1	523	9	TSTTPAKR		44991
HPV56	L1	523	10	TSTTPAKRK		44992
HPV56	L1	523	11	TSTTPAKRKR		44993
HPV56	L1	57	8	VATDSYVK		44994
HPV56	L1	57	9	VATDSYVKR		44995
HPV56	L1	443	8	VATSEDK		44996
HPV56	L1	443	9	VATSEDKY		44997
HPV56	L1	443	10	VATSEDKYR		44998
HPV56	L1	443	11	VATSEDKYRY		44999
HPV56	L1	106	11	VFRVLPDPNK		45000
HPV56	L1	193	10	VGCTPAMGEH		45001
HPV56	L1	301	10	VGETPAELY		45002
HPV56	L1	80	10	VGHPIYSVTK		45003
HPV56	L1	99	10	VSAYQYRVFR		45004
HPV56	L1	53	10	VSKVVATDSY		45005
HPV56	L1	365	8	VTVDVTR		45006
HPV56	L1	56	9	VVATDSYVK		45007
HPV56	L1	56	10	VVATDSYVKR		45008
HPV56	L1	134	10	WACVGLGVGR		45009
HPV56	L1	346	8	WLQRAQGH		45010
HPV56	L1	203	8	WTKGAVCK		45011
HPV56	L1	388	9	YDARKINQY		45012
HPV56	L1	388	11	YDARKINQYLR		45013
HPV56	L1	276	8	YGDMMWFY		45014
HPV56	L1	276	10	YGDMMWFYLR		45015
HPV56	L1	276	11	YGDMMWFYLRR		45016
HPV56	L1	7	9	YIYRDPPLH		45017
HPV56	L1	7	10	YIYRDPPLHY		45018
HPV56	L1	310	8	YLGSGNR		45019
HPV56	L1	268	9	YLKMSADAY		45020
HPV56	L1	47	9	YLPPTPVSK		45021
HPV56	L1	396	8	YLRHVEEY		45022
HPV56	L1	283	10	YLRREQLFAR		45023
HPV56	L1	283	11	YLRREQLFARH		45024
HPV56	L1	85	9	YSVTKDNTK		45025
HPV56	L1	62	9	YVKRTSIFY		45026
HPV56	L1	62	10	YVKRTSIFYH		45027
HPV56	L1	453	11	YVKSTAITCQR		45028
HPV56	L2	222	8	AAPRLYRK		45029
HPV56	L2	286	10	AFTRRGGVR		45030
HPV56	L2	69	9	AGYVPLGSR		45031
HPV56	L2	281	10	ALHRPAFTTR		45032

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L2	281	11	ALHRPAFTTTR		45033
HPV56	L2	438	9	ALWPVYFFR		45034
HPV56	L2	438	10	ALWPVYFFRR		45035
HPV56	L2	438	11	ALWPVYFFRRR		45036
HPV56	L2	340	9	ANNSFDGLY		45037
HPV56	L2	12	8	ASATQLYK		45038
HPV56	L2	12	11	ASATQLYKTK		45039
HPV56	L2	367	10	ATPSAHLPIK		45040
HPV56	L2	14	9	ATQLYKTK		45041
HPV56	L2	275	9	DFMNIVALH		45042
HPV56	L2	275	10	DFMNIVALHR		45043
HPV56	L2	142	10	DITPTSSTVH		45044
HPV56	L2	30	9	DVVKIEQK		45045
HPV56	L2	29	10	EDVVKIEQK		45046
HPV56	L2	194	10	EIPMQTFVH		45047
HPV56	L2	437	10	FALWPVYFFR		45048
HPV56	L2	437	11	FALWPVYFFRR		45049
HPV56	L2	344	8	FDGLYDIY		45050
HPV56	L2	444	8	FFRRRRRK		45051
HPV56	L2	444	9	FFRRRRRK		45052
HPV56	L2	276	8	FMNIVALH		45053
HPV56	L2	276	9	FMNIVALHR		45054
HPV56	L2	287	9	FTTRRGVR		45055
HPV56	L2	418	11	FVPQSPYDVTH		45056
HPV56	L2	314	8	GARVHY		45057
HPV56	L2	217	9	GFRRIAAPR		45058
HPV56	L2	217	11	GFRRIAAPRLY		45059
HPV56	L2	292	10	GGVRFSLGR		45060
HPV56	L2	292	11	GGVRFSLGRK		45061
HPV56	L2	58	11	GIGTGTSGGR		45062
HPV56	L2	394	9	GNVWETPFY		45063
HPV56	L2	64	8	GSGGRAGY		45064
HPV56	L2	434	10	GSSFALWPVY		45065
HPV56	L2	25	10	GTCPEDEVNK		45066
HPV56	L2	62	10	GTSGGRAGY		45067
HPV56	L2	60	9	GTGTSGGR		45068
HPV56	L2	310	9	GTQIGARVH		45069
HPV56	L2	310	10	GTQIGARVHY		45070
HPV56	L2	310	11	GTQIGARVHY		45071
HPV56	L2	293	9	GVRFSRLGR		45072
HPV56	L2	293	10	GVRFSRLGRK		45073
HPV56	L2	221	8	IAAPRLYR		45074
HPV56	L2	221	9	IAAPRLYRK		45075
HPV56	L2	313	8	IGARVHY		45076
HPV56	L2	313	9	IGARVHY		45077
HPV56	L2	59	10	IGTGTSGGR		45078

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L2	180	11	ILISTPTSGIH		45079
HPV56	L2	44	10	ILQWGSIFTY		45080
HPV56	L2	210	10	ISSTPIPGFR		45081
HPV56	L2	210	11	ISSTPIPGFRR		45082
HPV56	L2	182	9	ISTPTSGIH		45083
HPV56	L2	182	11	ISTPTSGIHSY		45084
HPV56	L2	143	9	ITPTSSSTVH		45085
HPV56	L2	81	8	IVDVTPAR		45086
HPV56	L2	302	8	KATIQTRR		45087
HPV56	L2	34	10	KIEQKTWADK		45088
HPV56	L2	43	11	KILQWGSIFTY		45089
HPV56	L2	235	10	KVTDPAFLDR		45090
HPV56	L2	141	11	LDITPTSSSTVH		45091
HPV56	L2	393	10	LGNVWETPFY		45092
HPV56	L2	299	10	LGRKATIQR		45093
HPV56	L2	181	11	LGRKATIQR		45094
HPV56	L2	338	10	LSTPTSGIH		45095
HPV56	L2	277	11	LSANNSFDGLY		45096
HPV56	L2	1	8	MNVALHR		45097
HPV56	L2	1	8	MVAHRATR		45098
HPV56	L2	1	9	MVAHRATR		45099
HPV56	L2	1	10	MVAHRATR		45100
HPV56	L2	1	11	MVAHRATR		45101
HPV56	L2	341	8	NNSFDGLY		45102
HPV56	L2	341	11	NNSFDGLYDIY		45103
HPV56	L2	342	10	NSFDGLYDIY		45104
HPV56	L2	395	8	NVWETPFY		45105
HPV56	L2	285	11	PAFTTRGGVR		45106
HPV56	L2	274	10	PDFMNIVALH		45107
HPV56	L2	274	11	PDFMNIVALHR		45108
HPV56	L2	417	8	PFVPSQSPY		45109
HPV56	L2	216	10	PGFRRIAAPR		45110
HPV56	L2	209	11	PISSTPIGFR		45111
HPV56	L2	392	11	PLGNVWETPFY		45112
HPV56	L2	196	8	PMQTFVH		45113
HPV56	L2	369	8	PSAHLPIK		45114
HPV56	L2	78	11	PSTIVDVTPAR		45115
HPV56	L2	185	8	PTSGIHSY		45116
HPV56	L2	441	8	PVYFFRRR		45117
HPV56	L2	441	9	PVYFFRRRR		45118
HPV56	L2	441	10	PVYFFRRRRR		45119
HPV56	L2	441	11	PVYFFRRRRRR		45120
HPV56	L2	433	11	QGSFALWPVY		45121
HPV56	L2	312	8	QIGARVHY		45122
HPV56	L2	312	9	QIGARVHY		45123
HPV56	L2	312	10	QIGARVHY		45124

Table XVII
A11 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L2	421	8	QSPYDVTH		45125
HPV56	L2	421	11	QSPYDVTHDVY		45126
HPV56	L2	364	9	QSVATPSAH		45127
HPV56	L2	306	11	QTRRGTOIGAR		45128
HPV56	L2	68	10	RAGYVPLGSR		45129
HPV56	L2	11	8	RASATQLY		45130
HPV56	L2	11	9	RASATQLYK		45131
HPV56	L2	295	8	RFRLGRK		45132
HPV56	L2	291	8	RGVRFGR		45133
HPV56	L2	291	11	RGVRFRLGR		45134
HPV56	L2	309	8	RGTOIGAR		45135
HPV56	L2	309	10	RGTOIGARVH		45136
HPV56	L2	309	11	RGTOIGARVHY		45137
HPV56	L2	220	8	RIAAPRLY		45138
HPV56	L2	220	9	RIAAPRLYR		45139
HPV56	L2	220	10	RIAAPRLYRK		45140
HPV56	L2	298	11	RLGRKATQTR		45141
HPV56	L2	225	11	RLYRKAFQVVK		45142
HPV56	L2	339	10	SANNSFDGLY		45143
HPV56	L2	13	10	SATQLYKTK		45144
HPV56	L2	436	8	SFALWPVY		45145
HPV56	L2	436	11	SFALWPVYFFR		45146
HPV56	L2	343	9	SFDGLYDIY		45147
HPV56	L2	24	11	SGTCPEDVVNK		45148
HPV56	L2	435	9	SSFALWPVY		45149
HPV56	L2	362	11	SSQSVATPSAH		45150
HPV56	L2	211	9	SSTPIPGFR		45151
HPV56	L2	211	10	SSTPIPGFR		45152
HPV56	L2	147	10	SSTVIIVSSSTH		45153
HPV56	L2	79	10	STIVDVTPAR		45154
HPV56	L2	212	8	STPIGFR		45155
HPV56	L2	212	9	STPIGFR		45156
HPV56	L2	183	8	STPTSGLH		45157
HPV56	L2	183	10	STPTSGLHSY		45158
HPV56	L2	148	9	STVIIVSSSTH		45159
HPV56	L2	414	11	STWPFVQSPY		45160
HPV56	L2	365	8	SVATPSAH		45161
HPV56	L2	26	9	TCPEDVVNK		45162
HPV56	L2	237	8	TDPAFLDR		45163
HPV56	L2	63	9	TGSGGRAGY		45164
HPV56	L2	61	8	TGTGSGGR		45165
HPV56	L2	61	11	TGTGSGGRAGY		45166
HPV56	L2	80	9	TIVDVTPAR		45167
HPV56	L2	146	11	TSSTVHVSSTH		45168
HPV56	L2	288	8	TTRGGVR		45169
HPV56	L2	288	11	TTRGGVRFSR		45170

Table XVII
All Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*1101	Seq. Id. No.
HPV56	L2	149	8	TVHVSSTH		45171
HPV56	L2	2	8	VAHRATTR		45172
HPV56	L2	2	9	VAHRATTRK		45173
HPV56	L2	2	10	VAHRATTRKR		45174
HPV56	L2	280	11	VALHRPAFTTR		45175
HPV56	L2	366	11	VATPSAHLPIK		45176
HPV56	L2	236	9	VTDP AFLDR		45177
HPV56	L2	31	8	VVNKIEQK		45178
HPV56	L2	424	8	YDVTHDVY		45179
HPV56	L2	443	8	YFRRRRR		45180
HPV56	L2	443	9	YFRRRRRK		45181
HPV56	L2	443	10	YFRRRRRKRR		45182

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E1	240	8	AFGLTPSI		45183
HPV16	E1	391	11	AFLKSNQAKI		45184
HPV16	E1	206	9	AMLAKFKEL		45185
HPV16	E1	500	9	CFVNSKSHF		45186
HPV16	E1	500	10	CFVNSKSHFW		45187
HPV16	E1	500	11	CFVNSKSHFWL		45188
HPV16	E1	304	9	CMMEPPKL		45189
HPV16	E1	528	9	CWNYDDNL		45190
HPV16	E1	50	10	DFVNDNDYL		45191
HPV16	E1	235	9	DWCIAAFGL		45192
HPV16	E1	438	8	DWKQIVMF		45193
HPV16	E1	438	9	DWKQIVMFL		45194
HPV16	E1	452	9	EFMSFLTAL		45195
HPV16	E1	338	9	EWIQRQTVL		45196
HPV16	E1	612	9	FFSRTWSRL		45197
HPV16	E1	612	11	FFSRTWSRLSL		45198
HPV16	E1	453	8	FMSFLTAL		45199
HPV16	E1	453	11	FMSFLTALKRF		45200
HPV16	E1	508	11	FWLQPLADAKI		45201
HPV16	E1	519	11	GMLDDATVPCW		45202
HPV16	E1	487	8	GMSLMKFL		45203
HPV16	E1	210	10	KFKELYGVSF		45204
HPV16	E1	492	8	KFLQGSVI		45205
HPV16	E1	492	10	KFLQGSVIF		45206
HPV16	E1	89	10	KYLVSPLSDI		45207
HPV16	E1	485	9	LFGMSLMKF		45208
HPV16	E1	485	10	LFGMSLMKFL		45209
HPV16	E1	490	10	LMKFLQGSVI		45210
HPV16	E1	475	11	LYGAANTGKSL		45211
HPV16	E1	214	9	LYGVFSSEL		45212
HPV16	E1	260	8	LYLHIQSL		45213
HPV16	E1	319	8	LYWYKTGI		45214
HPV16	E1	319	11	LYWYKTGISNI		45215
HPV16	E1	444	10	MFLRYQGVF		45216
HPV16	E1	305	8	MMIEPPKL		45217
HPV16	E1	608	10	NWKSFFSRTW		45218
HPV16	E1	530	11	NYIDDLNRNAL		45219
HPV16	E1	302	11	PMCMMEPPKL		45220
HPV16	E1	577	10	PYLINRLVVF		45221
HPV16	E1	419	8	QMSMSQWI		45222
HPV16	E1	359	11	QMVQWAYDNDI		45223
HPV16	E1	362	8	QWAYDNDI		45224
HPV16	E1	257	8	QYCLYLHI		45225
HPV16	E1	257	11	QYCLYLHIQSL		45226
HPV16	E1	575	9	RWPYLIINRL		45227
HPV16	E1	280	11	RYKCGKNRETI		45228

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV16	E1	447	10	RYQGVFMSF	45229
HPV16	E1	447	11	RYQGVFMSFL	45230
HPV16	E1	611	10	SFFSRTWSRL	45231
HPV16	E1	455	9	SFLTALKRF	45232
HPV16	E1	455	10	SFLTALKRFL	45233
HPV16	E1	349	9	SFNDCTFEL	45234
HPV16	E1	218	9	SFSELVRPF	45235
HPV16	E1	546	9	SMDVKHRPL	45236
HPV16	E1	270	8	SWGMMVLL	45237
HPV16	E1	270	9	SWGMMVLLL	45238
HPV16	E1	354	10	TFELSQMVFQW	45239
HPV16	E1	587	8	TFPNEFPF	45240
HPV16	E1	585	8	VFTFPNEF	45241
HPV16	E1	585	10	VFTFPNEFPF	45242
HPV16	E1	443	11	VMFLRYQGVF	45243
HPV16	E1	601	9	VYELNDKNW	45244
HPV16	E1	332	8	VYGDTPFW	45245
HPV16	E1	332	9	VYGDTPFWI	45246
HPV16	E1	321	9	WYKTGISNI	45247
HPV16	E1	320	10	YWYKTGISNI	45248
HPV16	E2	270	10	AFNSSHKGRI	45249
HPV16	E2	31	8	DYWKHMRL	45250
HPV16	E2	340	8	EWQRDQFL	45251
HPV16	E2	114	8	GYTVEVQF	45252
HPV16	E2	35	8	HMRLECAI	45253
HPV16	E2	18	9	HYENDSTD	45254
HPV16	E2	130	8	HYTNWTHI	45255
HPV16	E2	130	10	HYTNWTHIYI	45256
HPV16	E2	82	11	IYNSQYSNEKW	45257
HPV16	E2	42	10	IYKAREMGF	45258
HPV16	E2	91	9	KWTLQDVSL	45259
HPV16	E2	177	8	KYSKNKVV	45260
HPV16	E2	311	9	LYTAVSSTW	45261
HPV16	E2	311	11	LYTAVSSTWHW	45262
HPV16	E2	157	8	LYYVHEGI	45263
HPV16	E2	345	8	QFLSQVKI	45264
HPV16	E2	86	9	QYSNEKWT	45265
HPV16	E2	304	8	RFKKIICL	45266
HPV16	E2	302	10	RYRFKKIICL	45267
HPV16	E2	128	10	TMHYTNWTHI	45268
HPV16	E2	336	11	TYDSEWQRDQF	45269
HPV16	E2	183	11	VWEVHAGGQVI	45270
HPV16	E2	101	10	VYLTAPTGCI	45271
HPV16	E2	32	11	YWKHMRLECAI	45272
HPV16	E2	154	11	YYGLYYVHEGI	45273
HPV16	E2	43	9	YYKAREMGF	45274

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	E2	158	11	YYVHIEGIRTYF		45275
HPV16	E5	56	9	AFRCFIVYI		45276
HPV16	E5	56	10	AFRCFIVYII		45277
HPV16	E5	56	11	AFRCFIVYIIF		45278
HPV16	E5	18	10	CFCVLLCVCL		45279
HPV16	E5	18	11	CFCVLLCVCLL		45280
HPV16	E5	59	8	CFIVYIIF		45281
HPV16	E5	59	11	CFIVYIIFVYI		45282
HPV16	E5	14	9	CFLLCFCVL		45283
HPV16	E5	14	10	CFLLCFCVLL		45284
HPV16	E5	65	8	IFVYIPLF		45285
HPV16	E5	65	9	IFVYIPLFL		45286
HPV16	E5	65	10	IFVYIPLFLI		45287
HPV16	E5	71	10	LFLIHTHARF		45288
HPV16	E5	71	11	LFLIHTHARFL		45289
HPV16	E5	49	9	LWITAASAF		45290
HPV16	E5	38	8	TYTSLIIL		45291
HPV16	E5	38	10	TYTSLIILVL		45292
HPV16	E5	38	11	TYTSLIILVLL		45293
HPV16	E5	62	8	VYIIFVYI		45294
HPV16	E5	62	10	VYIIFVYIPL		45295
HPV16	E5	62	11	VYIIFVYIPLF		45296
HPV16	E5	67	8	VYIPLFLI		45297
HPV16	E6	87	9	CYSLYGTTL	0.0460	45298
HPV16	E6	51	9	DFAFRDLCI	0.0003	45299
HPV16	E6	82	9	EYRHYCYSL	0.0051	45300
HPV16	E6	85	11	HYCYSLYGTTL	0.0650	45301
HPV16	E6	66	9	PYAVCDKCL	0.0078	45302
HPV16	E6	66	11	PYAVCDKCLKF	0.1100	45303
HPV16	E6	98	9	QYNKPLCDL	0.0001	45304
HPV16	E6	98	10	QYNKPLCDLL	0.0015	45305
HPV16	E6	98	11	QYNKPLCDLLI		45306
HPV16	E6	131	9	RFINIRGRW	0.0220	45307
HPV16	E6	38	8	VYCKQQL	0.0069	45308
HPV16	E6	49	9	VYDFAFRDL	0.0150	45309
HPV16	E6	49	11	VYDFAFRDLCI		45310
HPV16	E7	83	11	LMGTGLGVCPI		45311
HPV16	E7	56	10	TFCKCDSTL		45312
HPV16	E7	13	11	CYENDVNVYIII		45313
HPV16	L1	176	9	DYKQTQLCL		45314
HPV16	L1	176	10	DYKQTQLCLI		45315
HPV16	L1	395	8	EYDLQFIF		45316
HPV16	L1	395	10	EYDLQFIFQL		45317
HPV16	L1	388	11	EYLRIGEEYDL		45318
HPV16	L1	52	8	EYVARTNI		45319
HPV16	L1	24	8	FFQMSLWL		45320

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	273	10	FFYLREQMF		45321
HPV16	L1	472	10	FWEVNLKEKF		45322
HPV16	L1	274	9	FYLREQMF		45323
HPV16	L1	116	9	FYNPDQRL		45324
HPV16	L1	116	11	FYNPDQRLVW		45325
HPV16	L1	230	10	GFGAMDFTL		45326
HPV16	L1	23	8	IFFQMSLW		45327
HPV16	L1	23	9	IFFQMSLWL		45328
HPV16	L1	332	8	IFNKPYWL		45329
HPV16	L1	401	9	IFQLCKITL		45330
HPV16	L1	59	10	IYYHAGTSRL		45331
HPV16	L1	59	11	IYYHAGTSRL		45332
HPV16	L1	108	9	KFGPDTSF		45333
HPV16	L1	493	8	KFLQAGL		45334
HPV16	L1	480	9	KFSADLDQF		45335
HPV16	L1	480	11	KFSADLDQFPL		45336
HPV16	L1	262	11	KMVSEPYGDSL		45337
HPV16	L1	469	9	KYTFWEVNL		45338
HPV16	L1	272	11	LFYLREQMF		45339
HPV16	L1	29	11	LWLPSEATVYL		45340
HPV16	L1	367	8	NMSLCAAI		45341
HPV16	L1	267	8	PYGDSLFF		45342
HPV16	L1	267	10	PYGDSLFFYL		45343
HPV16	L1	399	9	QFIFQLCKI		45344
HPV16	L1	399	11	QFIFQLCKITL		45345
HPV16	L1	487	8	QFPLGRKF		45346
HPV16	L1	487	9	QFPLGRKFL		45347
HPV16	L1	487	10	QFPLGRKFL		45348
HPV16	L1	280	8	QMFVRHLF		45349
HPV16	L1	95	9	QYRVFRIHL		45350
HPV16	L1	445	8	RFVTSQAI		45351
HPV16	L1	115	10	SFYNPDQRL		45352
HPV16	L1	174	9	SMDYKQTQL		45353
HPV16	L1	174	11	SMDYKQTQLCL		45354
HPV16	L1	419	10	SMNSTLEDW		45355
HPV16	L1	324	9	SMVTSDAQI		45356
HPV16	L1	324	10	SMVTSDAQIF		45357
HPV16	L1	4	8	TFIYILVI		45358
HPV16	L1	471	11	TFWEVNLKEKF		45359
HPV16	L1	415	10	TYIHSMNSTI		45360
HPV16	L1	415	11	TYIHSMNSTIL		45361
HPV16	L1	380	11	TYKNTNFKEYL		45362
HPV16	L1	443	10	TYRFVTSQAI		45363
HPV16	L1	20	10	VYHIFQMSL		45364
HPV16	L1	20	11	VYHIFQMSLW		45365
HPV16	L1	60	9	YYHAGTSRL		45366

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV16	L1	60	10	YYIIAGTSRLL		45367
HPV16	L2	241	9	AFITPTKL		45368
HPV16	L2	241	10	AFITPTKLI		45369
HPV16	L2	256	11	AYEGIDVDNTL		45370
HPV16	L2	282	8	DFLDIVAL		45371
HPV16	L2	329	11	DFSTDSAEI		45372
HPV16	L2	445	11	DFYLHPSYYML		45373
HPV16	L2	446	10	FYLHPSYYML		45374
HPV16	L2	392	9	GYIPANTTI		45375
HPV16	L2	392	11	GYIPANTTIPF		45376
HPV16	L2	180	11	HFTLSSSTI		45377
HPV16	L2	325	9	HYYYDFSTI		45378
HPV16	L2	365	9	LYDIYADDF		45379
HPV16	L2	365	10	LYDIYADDFI		45380
HPV16	L2	266	10	LYFSSNDNSI		45381
HPV16	L2	192	10	NYEEIPMDTF		45382
HPV16	L2	192	11	NYEEIPMDTFI		45383
HPV16	L2	401	8	PFGGAYNI		45384
HPV16	L2	401	10	PFGGAYNIPL		45385
HPV16	L2	463	10	PYFSDVSL		45386
HPV16	L2	47	8	QYGSMDGVF		45387
HPV16	L2	47	9	QYGSMDGVFF		45388
HPV16	L2	436	11	QYTHIADAGDF		45389
HPV16	L2	302	11	RYSRIGNKQTL		45390
HPV16	L2	50	9	SMGVFFGGL		45391
HPV16	L2	50	11	SMGVFFGGLGI		45392
HPV16	L2	162	8	TFTDPSVL		45393
HPV16	L2	251	10	TYDNPAYEGI		45394
HPV16	L2	348	10	TYTTTSHAAL		45395
HPV16	L2	53	8	VFFGGLGI		45396
HPV16	L2	464	8	YFSDVSL		45397
HPV16	L2	267	9	YFSSNDNSI		45398
HPV16	L2	267	11	YFSSNDNSINI		45399
HPV16	L2	453	10	YMLRKRRL		45400
HPV16	L2	452	11	YYMLRKRRL		45401
HPV16	L2	326	8	YYDFSTI		45402
HPV18	E1	526	11	AMDDATTTCW		45403
HPV18	E1	618	10	CFERTWSRL		45404
HPV18	E1	311	9	CMLIQPKL		45405
HPV18	E1	49	9	DFIDTQGT		45406
HPV18	E1	381	8	DMAFEYAL		45407
HPV18	E1	381	9	DMAFEYALL		45408
HPV18	E1	445	8	DWRPIVQF		45409
HPV18	E1	445	9	DWRPIVQFL		45410
HPV18	E1	459	9	EFITFLGAL		45411
HPV18	E1	594	8	EFNPAPF		45412

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	366	11	EMVQWAFDNEL		45413
HPV18	E1	345	8	EWIQLRTI		45414
HPV18	E1	345	9	EWIQLRTII		45415
HPV18	E1	619	9	FFERTWSRL		45416
HPV18	E1	619	11	FFERTWSRLDL		45417
HPV18	E1	257	9	GFKTLIQPF		45418
HPV18	E1	257	10	GFKTLIQPFI		45419
HPV18	E1	257	11	GFKTLIQPFIL		45420
HPV18	E1	494	8	GMSFIIIFI		45421
HPV18	E1	16	8	GWFYVQAI		45422
HPV18	E1	499	8	HFIQGAVI		45423
HPV18	E1	499	10	HFIQGAVISF		45424
HPV18	E1	247	8	IFGVNPTI		45425
HPV18	E1	277	9	KWGVLLIAL		45426
HPV18	E1	277	10	KWGVLLIALL		45427
HPV18	E1	267	8	LYAHIQCL		45428
HPV18	E1	326	8	LYWYRTGI		45429
HPV18	E1	326	11	LYWYRTGISNI		45430
HPV18	E1	361	10	NFDLSEMYQW		45431
HPV18	E1	428	8	NMSQWIRF		45432
HPV18	E1	615	10	NWKCFFERTW		45433
HPV18	E1	264	8	PFILYAH		45434
HPV18	E1	264	11	PFILYAHIQCL		45435
HPV18	E1	584	10	PYLESRTIVF		45436
HPV18	E1	451	8	QFLRYQOI		45437
HPV18	E1	451	10	QFLRYQQIEF		45438
HPV18	E1	451	11	QFLRYQQIEFI		45439
HPV18	E1	426	8	QMNMSSQWI		45440
HPV18	E1	426	10	QMNMSSQWIRF		45441
HPV18	E1	369	8	QWAFDNEL		45442
HPV18	E1	431	10	QWIRFRCSKI		45443
HPV18	E1	582	9	RWPYLESRI		45444
HPV18	E1	287	9	RYKCGKSRL		45445
HPV18	E1	454	8	RYQQIEFI		45446
HPV18	E1	454	10	RYQQIEFITF		45447
HPV18	E1	454	11	RYQQIEFITFL		45448
HPV18	E1	496	11	SFHHIQGAVI		45449
HPV18	E1	225	9	SFTDLVRNF		45450
HPV18	E1	507	9	SFVNSTSHF		45451
HPV18	E1	507	10	SFVNSTSHFW		45452
HPV18	E1	507	11	SFVNSTSHFWL		45453
HPV18	E1	491	8	SYFGMSFI		45454
HPV18	E1	491	10	SYFGMSFIIF		45455
HPV18	E1	491	11	SYFGMSFIIFI		45456
HPV18	E1	56	8	TFCEQAEL		45457
HPV18	E1	462	9	TFLGALKSF		45458

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E1	462	10	TLGALKSFL		45459
HPV18	E1	537	11	TYFDTYMRNAL		45460
HPV18	E1	221	9	TYGLSFTDL		45461
HPV18	E1	592	8	VFEFPNAF		45462
HPV18	E1	592	10	VFEFPNAEPF		45463
HPV18	E1	217	8	VFKDTYGL		45464
HPV18	E1	217	10	VEKDTYGLSF		45465
HPV18	E1	339	8	VMGDTPEW		45466
HPV18	E1	339	9	VMGDTPEWI		45467
HPV18	E1	608	9	VYEINDKNW		45468
HPV18	E1	328	9	WYRTGISNI		45469
HPV18	E1	538	10	YFDTYMRNAL		45470
HPV18	E1	492	9	YFGMSFIHF		45471
HPV18	E1	492	10	YFGMSFIIFI		45472
HPV18	E1	542	11	YMRNALDGNPI		45473
HPV18	E1	327	10	YWYRTGISNI		45474
HPV18	E1	95	11	DWTLQDTCEEL		45475
HPV18	E2	47	9	FFAAREHGI		45476
HPV18	E2	168	9	GYNTFYIEF		45477
HPV18	E2	22	9	HYENDSKDI		45478
HPV18	E2	312	9	HYRDISSTW		45479
HPV18	E2	312	11	HYRDISSTWHW		45480
HPV18	E2	46	10	IFFAAREHGI		45481
HPV18	E2	345	8	KFLNTVAI		45482
HPV18	E2	182	8	KYGNLTGTW		45483
HPV18	E2	105	10	LWNTPTHCF		45484
HPV18	E2	162	11	LYYVKEGYNTF		45485
HPV18	E2	35	8	QYWQLIRW		45486
HPV18	E2	41	8	RWENAIF		45487
HPV18	E2	90	9	RYKTEDWTL		45488
HPV18	E2	188	11	TWEVHFGNNVI		45489
HPV18	E2	336	11	TYHSETQRTKF		45490
HPV18	E2	141	10	VYYMTDAGTW		45491
HPV18	E2	143	8	YMTDAGTW		45492
HPV18	E2	36	11	YWQLIRWENAI		45493
HPV18	E2	142	9	YYMTDAGTW		45494
HPV18	E2	163	10	YYVKEGYNTF		45495
HPV18	E5	49	9	AFTVYVFCF		45496
HPV18	E5	49	10	AFTVYVFCFL		45497
HPV18	E5	49	11	AFTVYVFCFLL		45498
HPV18	E5	32	9	AWVLVIFYI		45499
HPV18	E5	30	8	AYAWVLVF		45500
HPV18	E5	30	11	AYAWVLVIFYI		45501
HPV18	E5	56	8	CFLPMLL		45502
HPV18	E5	56	9	CFLPMLLL		45503
HPV18	E5	56	11	CFLPMLLLII		45504

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	E5	27	9	CMCAYAWVL		45505
HPV18	E5	27	11	CMCAYAWVLVF		45506
HPV18	E5	13	10	CMYVCCHVPL		45507
HPV18	E5	13	11	CMYVCCHVPLL		45508
HPV18	E5	14	9	MYVCCHVPL		45509
HPV18	E5	14	10	MYVCCHVPLL		45510
HPV18	E5	60	10	PMLLHHHAI		45511
HPV18	E5	60	11	PMLLHHHAIL		45512
HPV18	E5	54	9	VFCFLPML		45513
HPV18	E5	54	10	VFCFLPMLL		45514
HPV18	E5	54	11	VFCFLPMLLL		45515
HPV18	E5	36	8	VFVIVVI		45516
HPV18	E5	52	8	VYVFCFL		45517
HPV18	E5	52	11	VYVFCFLPML		45518
HPV18	E6	70	9	DFYSRREL		45519
HPV18	E6	46	8	EFAFKDLF		45520
HPV18	E6	71	8	FYSRREL	0.0260	45521
HPV18	E6	80	11	HYSDSVYGDTL	0.0069	45522
HPV18	E6	52	9	LFVVYRDSI		45523
HPV18	E6	98	9	LYNLLIRCL	0.0001	45524
HPV18	E6	11	11	PYKLPDLCTEL	0.0064	45525
HPV18	E6	44	9	VFEFAFKDL		45526
HPV18	E6	44	10	VFEFAFKDLF	0.0360	45527
HPV18	E6	33	9	YCKTVLEL	0.0220	45528
HPV18	E6	85	9	VYGDTLEKL	0.0150	45529
HPV18	E7	85	10	AFQQLFLNTL		45530
HPV18	E7	63	10	CMCKCEARI	0.0001	45531
HPV18	E7	89	8	LFNLTSF		45532
HPV18	L1	128	11	AYQYRVERVQL		45533
HPV18	L1	211	9	DYKQTQLCI		45534
HPV18	L1	211	10	DYKQTQLCIL		45535
HPV18	L1	87	8	DYVTPTSI		45536
HPV18	L1	87	9	DYVTPTSIF		45537
HPV18	L1	431	8	EYDLQFIF		45538
HPV18	L1	431	10	EYDLQFIFQL		45539
HPV18	L1	308	9	FFCLRREQL		45540
HPV18	L1	308	10	FFCLRREQLF		45541
HPV18	L1	508	10	FWNVDLKEKF		45542
HPV18	L1	95	9	FYHAGSSRL		45543
HPV18	L1	95	10	FYHAGSSRL		45544
HPV18	L1	265	10	GYGAMDFSTL		45545
HPV18	L1	11	11	IYHLLPLYGPL		45546
HPV18	L1	58	8	IFLQMALW		45547
HPV18	L1	437	9	IFQLCTITL		45548
HPV18	L1	94	10	IFYHAGSSRL		45549
HPV18	L1	94	11	IFYHAGSSRL		45550

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L1	151	9	LYNPETQRL		45551
HPV18	L1	151	11	LYNPETQRLVW		45552
HPV18	L1	143	9	KFGLPDTSI		45553
HPV18	L1	529	8	KFLVQAGL		45554
HPV18	L1	516	11	KFSLDLDQYPL		45555
HPV18	L1	507	11	KFWNVDLKEKF		45556
HPV18	L1	48	9	LFLRNVNVF		45557
HPV18	L1	48	11	LFLRNVNVPFI		45558
HPV18	L1	367	8	LFNKPYWL		45559
HPV18	L1	64	11	LWRPSDNTVYL		45560
HPV18	L1	17	11	LYGPLYHPRPL		45561
HPV18	L1	21	9	LYHPRPLPL		45562
HPV18	L1	3	8	LYTRVLIL		45563
HPV18	L1	307	10	MFCLRRQL		45564
HPV18	L1	307	11	MFCLRRQLF		45565
HPV18	L1	502	8	PYDKLKFW		45566
HPV18	L1	302	8	PYGDSMFF		45567
HPV18	L1	302	10	PYGDSMFFCL		45568
HPV18	L1	435	9	QFIFQLCTI		45569
HPV18	L1	435	11	QFIFQLCTITL		45570
HPV18	L1	523	8	QYPLGRKF		45571
HPV18	L1	523	9	QYPLGRKFL		45572
HPV18	L1	130	9	QYRVFRVQL		45573
HPV18	L1	424	11	QYSRHVEEYDL		45574
HPV18	L1	481	8	RFVQSVAI		45575
HPV18	L1	306	11	SMFFCLRRQL		45576
HPV18	L1	455	10	SMNSSLEDW		45577
HPV18	L1	451	10	SYIHSMNSSI		45578
HPV18	L1	451	11	SYIHSMNSSIL		45579
HPV18	L1	327	10	TMGDTVPQSL		45580
HPV18	L1	479	10	TYRFVQSVAI		45581
HPV18	L1	55	10	VFPIFLQMAL		45582
HPV18	L1	55	11	VFPIFLQMALW		45583
HPV18	L1	160	9	VWACAGVEI		45584
HPV18	L1	34	8	VYMVHIII		45585
HPV18	L1	351	10	VYSPSPSGSI		45586
HPV18	L2	255	9	AFEPVDITL		45587
HPV18	L2	255	11	AFEPVDITLTF		45588
HPV18	L2	370	9	AFKYSPTI		45589
HPV18	L2	161	8	AFDPSII		45590
HPV18	L2	275	8	DFMDIIRL		45591
HPV18	L2	240	9	EFLTRPSSL		45592
HPV18	L2	240	10	EFLTRPSSLI		45593
HPV18	L2	331	8	EYIELQPL		45594
HPV18	L2	371	8	FFKYSPTI		45595
HPV18	L2	319	8	FYIIDISPI		45596

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV18	L2	191	10	GVEEPLQTF		45597
HPV18	L2	318	9	HFYHDSPI		45598
HPV18	L2	434	10	HYLWPLYF		45599
HPV18	L2	434	11	HYLWPLYYFI		45600
HPV18	L2	52	8	IFLGGLGI		45601
HPV18	L2	437	8	LWPLYFI		45602
HPV18	L2	305	9	MFTSGTQI		45603
HPV18	L2	452	8	PYFFADGF		45604
HPV18	L2	46	8	QWSSLGIF		45605
HPV18	L2	46	9	QWSSLGIFL		45606
HPV18	L2	368	11	SFAFFKYSPTI		45607
HPV18	L2	383	9	SYSNVTIPL		45608
HPV18	L2	121	8	TFTGTSGF		45609
HPV18	L2	121	10	TFTGTSGFDI		45610
HPV18	L2	304	10	TMFTSGTQI		45611
HPV18	L2	399	9	VYTGPDITL		45612
HPV18	L2	435	9	YYLWPLYF		45613
HPV18	L2	435	10	YYLWPLYYFI		45614
HPV18	L2	371	11	AFLKSNSQAKI		45615
HPV31	E1	186	9	AMLGKFKEI		45616
HPV31	E1	284	9	CMLIQPPKL		45617
HPV31	E1	508	9	CWHYIDNYL		45618
HPV31	E1	418	8	DWRDIVKF		45619
HPV31	E1	418	9	DWRDIVKFL		45620
HPV31	E1	102	8	DYNISPRL		45621
HPV31	E1	102	11	DYNISPRLKAI		45622
HPV31	E1	432	9	EFVSFLSAL		45623
HPV31	E1	432	11	EFVSFLSALKL		45624
HPV31	E1	318	9	EWIERQTVL		45625
HPV31	E1	592	9	FFSRTWCRL		45626
HPV31	E1	592	11	FFSRTWCRLNL		45627
HPV31	E1	199	8	FMELIRPF		45628
HPV31	E1	488	11	FWLQPLADAKI		45629
HPV31	E1	230	11	GFKTLQPYCL		45630
HPV31	E1	499	11	GMLDDATTTCW		45631
HPV31	E1	467	8	GMSLSIFL		45632
HPV31	E1	252	10	GMVMLMLVRF		45633
HPV31	E1	16	9	GWFYVEAVI		45634
HPV31	E1	510	11	HYIDNYLRNAL		45635
HPV31	E1	190	10	KFKELYGVSF		45636
HPV31	E1	424	8	KFLRYOOI		45637
HPV31	E1	424	10	KFLRYQQIEF		45638
HPV31	E1	88	10	KYVGSPLSDI		45639
HPV31	E1	534	9	LMQLKCPPL		45640
HPV31	E1	534	10	LMQLKCPPLI		45641
HPV31	E1	534	11	LMQLKCPPLII		45642

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E1	240	8	LYCHLQSL		45643
HPV31	E1	194	9	LYGVSMEL		45644
HPV31	E1	194	10	LYGVSMELI		45645
HPV31	E1	299	11	LYWYRTGMSNI		45646
HPV31	E1	588	10	NWKSFFRTW		45647
HPV31	E1	237	8	PYCLYCHL		45648
HPV31	E1	237	11	PYCLYCHLQSL		45649
HPV31	E1	557	10	PYLHSRLVVF		45650
HPV31	E1	399	8	QMSMGQWI		45651
HPV31	E1	260	9	RFKCAKNRI		45652
HPV31	E1	260	11	RFKCAKNRITI		45653
HPV31	E1	555	9	RWPYLHSRL		45654
HPV31	E1	427	10	RYQQIEFVSF		45655
HPV31	E1	427	11	RYQQIEFVSFL		45656
HPV31	E1	591	10	SFFSRTWCRL		45657
HPV31	E1	472	8	SFLQGCII		45658
HPV31	E1	435	8	SFSLALKL		45659
HPV31	E1	435	9	SFSLALKLF		45660
HPV31	E1	435	10	SFSLALKLFL		45661
HPV31	E1	198	9	SFMELIRPF		45662
HPV31	E1	329	9	SFNDTTFDL		45663
HPV31	E1	250	9	SWGVMVLMML		45664
HPV31	E1	480	9	SYANSKSHF		45665
HPV31	E1	480	10	SYANSKSHFW		45666
HPV31	E1	480	11	SYANSKSHFWL		45667
HPV31	E1	464	8	SYFGMSLI		45668
HPV31	E1	464	10	SYFGMSLSIF		45669
HPV31	E1	464	11	SYFGMSLSIFL		45670
HPV31	E1	334	10	TFDLSQMVGW		45671
HPV31	E1	617	10	TFKCVSGQNI		45672
HPV31	E1	567	8	TFPNPFPF		45673
HPV31	E1	565	8	VFTFPNPF		45674
HPV31	E1	565	10	VFTFPNPFPF		45675
HPV31	E1	254	8	VMLMLVRF		45676
HPV31	E1	581	9	VYELSDKNW		45677
HPV31	E1	312	8	VYGETPEW		45678
HPV31	E1	312	9	VYGETPEWI		45679
HPV31	E1	17	8	WFYVEAVI		45680
HPV31	E1	301	9	WYRTGMSNI		45681
HPV31	E1	465	9	YFGMSLSIF		45682
HPV31	E1	465	10	YFGMSLSIFL		45683
HPV31	E1	300	10	YWYRTGMSNI		45684
HPV31	E2	352	8	DFLNTVKI		45685
HPV31	E2	91	9	DWTMQQTSL		45686
HPV31	E2	91	11	DWTMQQTSLEL		45687
HPV31	E2	31	8	DYWKHIRL		45688

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV31	E2	114	8	GYTVEVQF	45689
HPV31	E2	18	9	HYENDSKRL	45690
HPV31	E2	130	8	IYTNWKFI	45691
HPV31	E2	130	10	IYTNWKFIYL	45692
HPV31	E2	157	9	IYVHEGHI	45693
HPV31	E2	183	11	KWEVHAGGQVI	45694
HPV31	E2	177	8	KYGTGKKW	45695
HPV31	E2	42	10	LMYKAREMGI	45696
HPV31	E2	318	9	LYEQVSSTW	45697
HPV31	E2	318	11	LYEQVSSTWHW	45698
HPV31	E2	101	10	LYLTAPTGCL	45699
HPV31	E2	43	9	MYKAREMGI	45700
HPV31	E2	133	9	NWKFIYLCI	45701
HPV31	E2	309	10	RYRLSKYKQL	45702
HPV31	E2	206	9	SFAGIVTKL	45703
HPV31	E2	128	9	TMHYTNWKF	45704
HPV31	E2	128	10	TMIYTNWKFI	45705
HPV31	E2	93	9	TMOOTSLEL	45706
HPV31	E2	93	11	TMOQTSLELYL	45707
HPV31	E2	343	11	TYISTSQRDDF	45708
HPV31	E2	199	9	VFSSDEISF	45709
HPV31	E2	32	11	YWKHIRLECVL	45710
HPV31	E2	158	8	YYVHEGHI	45711
HPV31	E2	158	11	YYVHEGHITYF	45712
HPV31	E5	59	8	CFCIYVVF	45713
HPV31	E5	59	9	CFCIYVVFV	45714
HPV31	E5	59	11	CFCIYVVFVI	45715
HPV31	E5	18	10	CFCVLLFVCL	45716
HPV31	E5	14	9	CFLLCFCVL	45717
HPV31	E5	14	10	CFLLCFCVLL	45718
HPV31	E5	14	11	CFLLCFCVLLF	45719
HPV31	E5	67	8	IYIPLFVI	45720
HPV31	E5	62	8	IYVVFVIYI	45721
HPV31	E5	62	10	IYVVFVIYIPL	45722
HPV31	E5	62	11	IYVVFVIYIPLF	45723
HPV31	E5	23	10	LFVCLVIRPL	45724
HPV31	E5	71	10	LFVIHTHASF	45725
HPV31	E5	71	11	LFVIHTHASFL	45726
HPV31	E5	49	9	LWVIATSPL	45727
HPV31	E5	65	8	VFIYIPLF	45728
HPV31	E5	65	10	VFIYIPLFVI	45729
HPV31	E5	38	8	VYATLLLL	45730
HPV31	E5	38	9	VYATLLLLI	45731
HPV31	E5	38	11	VYATLLLLIVI	45732
HPV31	E6	44	9	DFAFTDLTI	45733
HPV31	E6	69	8	FYSKVSEF	45734

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	E6	69	10	FYSKVSEFRW		45735
HPV31	E6	124	9	RFINIGRW		45736
HPV31	E6	68	9	RFYSKVSEF		45737
HPV31	E6	68	11	RFYSKVSEFRW		45738
HPV31	E6	131	10	RWTGRCIACW		45739
HPV31	E6	80	9	RYSVYGTTL		45740
HPV31	E6	83	9	VYGTILEKL		45741
HPV31	E6	78	11	WYYSVYGTTL		45742
HPV31	E7	56	10	TFCCQCKSTL		45743
HPV31	L1	151	9	DYKQTQLCL		45744
HPV31	L1	151	10	DYKQTQLCLL		45745
HPV31	L1	444	9	DYVFWVNL		45746
HPV31	L1	370	8	EFDLQFIF		45747
HPV31	L1	370	10	EFDLQFIFQL		45748
HPV31	L1	363	9	EYLRHGEF		45749
HPV31	L1	363	11	EYLRHGEFDL		45750
HPV31	L1	26	8	EYVTRNI		45751
HPV31	L1	248	10	FFYLRREQMF		45752
HPV31	L1	447	10	FWENLKEKF		45753
HPV31	L1	249	9	FYLRREQMF		45754
HPV31	L1	91	9	FYNPETQRL		45755
HPV31	L1	91	11	FYNPETQRLVW		45756
HPV31	L1	205	10	GFGAMDFTAL		45757
HPV31	L1	474	8	GYRARPKE		45758
HPV31	L1	376	9	IFQLCKITL		45759
HPV31	L1	33	10	IYHIAGSARL		45760
HPV31	L1	33	11	IYHIAGSARLL		45761
HPV31	L1	83	9	KFGPDTSF		45762
HPV31	L1	455	9	KFSADLDQF		45763
HPV31	L1	455	11	KFSADLDQFPL		45764
HPV31	L1	237	11	KMVAEPYGDIL		45765
HPV31	L1	247	11	LFYLRREQMF		45766
HPV31	L1	3	11	LWRPSEATVYL		45767
HPV31	L1	342	8	NMSVCAAI		45768
HPV31	L1	441	8	PKDYVFW		45769
HPV31	L1	242	8	PYGDITLFF		45770
HPV31	L1	242	10	PYGDITLFFYL		45771
HPV31	L1	374	9	QFIFQLCKI		45772
HPV31	L1	374	11	QFIFQLCKITL		45773
HPV31	L1	462	8	QFPLGRKF		45774
HPV31	L1	462	9	QFPLGRKFL		45775
HPV31	L1	462	10	QFPLGRKFL		45776
HPV31	L1	255	8	QMFVRHFF		45777
HPV31	L1	70	9	QYRVFVRVL		45778
HPV31	L1	420	8	RFVTSQAI		45779
HPV31	L1	90	10	SFYNPETQRL		45780

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV31	L1	149	9	SMDYKQTQL		45781
HPV31	L1	149	11	SMDYKQTQLCL		45782
HPV31	L1	394	10	SMNPAILEDW		45783
HPV31	L1	299	9	SMVTSDAQI		45784
HPV31	L1	299	10	SMVTSDAQIF		45785
HPV31	L1	355	11	TFKSSNFKEYL		45786
HPV31	L1	390	10	TYIHSMNPAL		45787
HPV31	L1	390	11	TYIHSMNPAIL		45788
HPV31	L1	418	10	TYREVTSQL		45789
HPV31	L1	446	11	VFEVNLKEKF		45790
HPV31	L1	34	9	YHAGSARL		45791
HPV31	L1	34	10	YHAGSARLL		45792
HPV31	L2	251	11	AYETVNAEESL		45793
HPV31	L2	385	11	AYVPTNTVPL		45794
HPV31	L2	275	8	DFLDIAL		45795
HPV31	L2	438	11	DFYLHPSYYML		45796
HPV31	L2	439	10	FYLHPSYYML		45797
HPV31	L2	318	9	HYYYDISSI		45798
HPV31	L2	403	9	IFSGPDVPI		45799
HPV31	L2	432	8	IFVDGGDF		45800
HPV31	L2	432	10	IFVDGGDFYL		45801
HPV31	L2	352	10	LYDIYADTDF		45802
HPV31	L2	261	10	LYFSNTSHNI		45803
HPV31	L2	187	10	NYEEIPMDTF		45804
HPV31	L2	187	11	NYEEIPMDTFI		45805
HPV31	L2	47	8	RYGSMGVF		45806
HPV31	L2	47	9	RYGSMGVFF		45807
HPV31	L2	295	11	RYSLGNKQTL		45808
HPV31	L2	50	9	SMGVFFGGL		45809
HPV31	L2	50	11	SMGVFFGGLGI		45810
HPV31	L2	195	11	TFIVSTNNENI		45811
HPV31	L2	236	9	TFLSAPKQL		45812
HPV31	L2	236	10	TFLSAPKQLI		45813
HPV31	L2	157	8	TFTDPSVL		45814
HPV31	L2	53	8	VFFGGLGI		45815
HPV31	L2	262	9	YFSNTSHNI		45816
HPV31	L2	319	8	YYYDISSI		45817
HPV33	E1	452	9	AFKKFLKGI		45818
HPV33	E1	448	9	AFLGAFKKF		45819
HPV33	E1	448	10	AFLGAFKKFL		45820
HPV33	E1	384	11	AFLKSNSQAKI		45821
HPV33	E1	207	9	AYGISFMEL		45822
HPV33	E1	297	9	CMVIEPPKL		45823
HPV33	E1	228	9	DWCITGYGI		45824
HPV33	E1	49	11	EFIDDSMENS		45825
HPV33	E1	580	8	EFKNPPPF		45826

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E1	445	9	EFTAFLGAF		45827
HPV33	E1	352	11	EMVQWAYDNEL		45828
HPV33	E1	331	9	EWIDRLTVL		45829
HPV33	E1	605	9	FFSRTWCKL		45830
HPV33	E1	605	11	FFSRTWCKLDL		45831
HPV33	E1	212	8	FMELVRPF		45832
HPV33	E1	501	11	FWLQPLSDAKI		45833
HPV33	E1	11	8	GMGCTGWF		45834
HPV33	E1	512	9	GMIDDVTPI		45835
HPV33	E1	512	11	GMIDDVTPISW		45836
HPV33	E1	480	8	GMSLIQFL		45837
HPV33	E1	16	9	GWFEVEAVI		45838
HPV33	E1	347	10	IFDLSEMVQW		45839
HPV33	E1	203	8	KFKEAYGI		45840
HPV33	E1	203	10	KFKEAYGISF		45841
HPV33	E1	412	8	KMSIGQWI		45842
HPV33	E1	69	11	LFNIQEGEDDL		45843
HPV33	E1	286	8	LMSNLLSI		45844
HPV33	E1	201	10	LYKFKEAYGI		45845
HPV33	E1	253	8	LYTHLQCL		45846
HPV33	E1	312	11	LYWFTAMSN		45847
HPV33	E1	601	10	NWKSFFSRTW		45848
HPV33	E1	431	8	NWRPIVQL		45849
HPV33	E1	431	9	NWRPIVQLL		45850
HPV33	E1	570	10	PYLHSRLTVF		45851
HPV33	E1	485	8	QFLKGCVI		45852
HPV33	E1	355	8	QWAYDNEL		45853
HPV33	E1	273	9	RPRCSKNRL		45854
HPV33	E1	568	9	RWPYLHSRL		45855
HPV33	E1	440	10	RYQNIETAF		45856
HPV33	E1	440	11	RYQNIETAF		45857
HPV33	E1	604	10	SFFSRTWCKL		45858
HPV33	E1	211	9	SFMELVRPF		45859
HPV33	E1	342	9	SFNDNIFDL		45860
HPV33	E1	477	8	SYFGMSLI		45861
HPV33	E1	477	10	SYFGMSLIQF		45862
HPV33	E1	477	11	SYFGMSLIQFL		45863
HPV33	E1	609	8	TWCKLDLI		45864
HPV33	E1	523	11	TYIDDMRNAL		45865
HPV33	E1	119	10	TYRKRKIDEL		45866
HPV33	E1	578	8	VFEFKNPF		45867
HPV33	E1	578	10	VFEFKNPPF		45868
HPV33	E1	594	9	VYAINDENW		45869
HPV33	E1	17	8	WFEVEAVI		45870
HPV33	E1	314	9	WFTAMSN		45871
HPV33	E1	478	9	YFGMSLIQF		45872

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E1	478	10	YFGMSLIQFL		45873
HPV33	E1	528	11	YMRNALDGNEI		45874
HPV33	E1	313	10	YWFRTAMNSI		45875
HPV33	E2	69	11	AFQVIELQMAL		45876
HPV33	E2	153	8	DYIGMYI		45877
HPV33	E2	130	8	DYTNWGEI		45878
HPV33	E2	130	10	DYTNWGEIYI		45879
HPV33	E2	130	11	DYTNWGEIYII		45880
HPV33	E2	32	11	HWKLIRMECAL		45881
HPV33	E2	177	8	KYSKTQMW		45882
HPV33	E2	243	8	LFCADPAL		45883
HPV33	E2	18	9	LYEADKIDL		45884
HPV33	E2	299	9	LYSSMSSTW		45885
HPV33	E2	299	11	LYSSMSSTWHW		45886
HPV33	E2	43	9	LYTAKQMGF		45887
HPV33	E2	333	8	MELGTVKI		45888
HPV33	E2	183	11	MWEVIIVGGQVI		45889
HPV33	E2	133	8	NWGEIYII		45890
HPV33	E2	332	9	QMELGTVKI		45891
HPV33	E2	91	9	QWTLQQTSL		45892
HPV33	E2	86	9	QYSTSQWTL		45893
HPV33	E2	290	10	RYRLKPYKEL		45894
HPV33	E2	302	8	SMSSTWHW		45895
HPV33	E2	324	11	TFVTEQQQQMF		45896
HPV33	E2	128	10	TMDYTNWGEI		45897
HPV33	E2	146	10	TMVTGKVDYI		45898
HPV33	E2	101	10	VWLCEPPKCF		45899
HPV33	E2	158	11	YIHNCCKVYF		45900
HPV33	E2	30	8	AWLLVLVL		45901
HPV33	E5	30	9	AWLLVLVLL		45902
HPV33	E5	30	10	AWLLVLVLLL		45903
HPV33	E5	30	11	AWLLVLVLLLW		45904
HPV33	E5	8	8	CFILFLCL		45905
HPV33	E5	8	10	CFILFLCLSL		45906
HPV33	E5	8	11	CFILFLCLSL		45907
HPV33	E5	52	8	CYLLFLYL		45908
HPV33	E5	50	8	FFCYLLFL		45909
HPV33	E5	50	10	FFCYLLFLYL		45910
HPV33	E5	49	8	IFFCYLLF		45911
HPV33	E5	49	9	IFFCYLLFL		45912
HPV33	E5	49	11	IFFCYLLFLYL		45913
HPV33	E5	2	8	IFVFVLCF		45914
HPV33	E5	2	9	IFVFVLCFI		45915
HPV33	E5	2	10	IFVFVLCFIL		45916
HPV33	E5	2	11	IFVFVLCFILF		45917
HPV33	E5	11	8	LFLCLSL		45918

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	E5	11	9	LFCLSLLL		45919
HPV33	E5	55	10	LFLYLPMMCI		45920
HPV33	E5	39	9	LWVFGSPL		45921
HPV33	E5	39	11	LWVFGSPLKI		45922
HPV33	E5	57	8	LYLPMMCI		45923
HPV33	E5	57	10	LYLPMMCINF		45924
HPV33	E5	28	8	TYAWLLVL		45925
HPV33	E5	28	10	TYAWLLVLVL		45926
HPV33	E5	28	11	TYAWLLVLVLL		45927
HPV33	E5	41	9	VFVGSPLKI		45928
HPV33	E5	41	10	VFVGSPLKIF		45929
HPV33	E5	41	11	VFVGSPLKIFF		45930
HPV33	E5	4	8	VFLCFIL		45931
HPV33	E5	4	9	VFLCFILF		45932
HPV33	E5	4	10	VFLCFILFL		45933
HPV33	E6	139	11	CWRSRRRETAL		45934
HPV33	E6	78	11	HYNSVYGNL		45935
HPV33	E6	80	9	NYSVYGNL		45936
HPV33	E6	59	9	PFICKLCL		45937
HPV33	E6	59	11	PFICKLCLRF		45938
HPV33	E6	124	9	RFINISGRW		45939
HPV33	E6	131	10	RWAGRCACW		45940
HPV33	E6	42	9	VYDFAFADL		45941
HPV33	E6	53	8	VYREGNPF		45942
HPV33	E6	53	10	VYREGNPGI		45943
HPV33	E7	15	8	LYPEPTDL		45944
HPV33	L1	392	10	AMNPDIEDW		45945
HPV33	L1	151	9	DYKQTQLCL		45946
HPV33	L1	151	10	DYKQTQLCLL		45947
HPV33	L1	368	8	EYDLQFVF		45948
HPV33	L1	368	10	EYDLQFVQL		45949
HPV33	L1	361	11	EYIRHVEEYDL		45950
HPV33	L1	26	8	EYVSRTSI		45951
HPV33	L1	247	10	FFFLRREQMF		45952
HPV33	L1	248	9	FFLRREQMF		45953
HPV33	L1	260	8	FFNRAGTL		45954
HPV33	L1	445	10	FWEDLKEKF		45955
HPV33	L1	91	9	FYNPDQRL		45956
HPV33	L1	91	11	FYNPDQRLVW		45957
HPV33	L1	204	10	GFCDMDFKTL		45958
HPV33	L1	259	9	HFENRAGTL		45959
HPV33	L1	33	10	IYYAGSSRL		45960
HPV33	L1	33	11	IYYAGSSRL		45961
HPV33	L1	83	9	KFGPDTSF		45962
HPV33	L1	466	8	KFLQAGL		45963
HPV33	L1	453	9	KFSADLDQF		45964

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L1	453	11	KFSADLDQFPL		45965
HPV33	L1	236	11	KMTSEPYGDSL		45966
HPV33	L1	442	9	KYTFWEVDL		45967
HPV33	L1	246	11	LFELRREQMF		45968
HPV33	L1	306	8	LFNKPYWL		45969
HPV33	L1	241	8	PYGDSLFF		45970
HPV33	L1	241	9	PYGDSLFFF		45971
HPV33	L1	241	10	PYGDSLFFFL		45972
HPV33	L1	460	8	QFPLGRKF		45973
HPV33	L1	460	9	QFPLGRKFL		45974
HPV33	L1	460	10	QFPLGRKFL		45975
HPV33	L1	372	11	QFVQLCKVTL		45976
HPV33	L1	254	8	QMEVRHFF		45977
HPV33	L1	70	9	QYRVFRVRL		45978
HPV33	L1	418	8	RFVTSQAI		45979
HPV33	L1	90	10	SFYNPDTQRL		45980
HPV33	L1	149	9	SMDYKQTQL		45981
HPV33	L1	149	11	SMDYKQTQLCL		45982
HPV33	L1	298	9	SMVTESQL		45983
HPV33	L1	298	10	SMVTESQLF		45984
HPV33	L1	444	11	TFWEVDLKEKF		45985
HPV33	L1	388	10	TYHAMNPD		45986
HPV33	L1	388	11	TYHAMNPDIL		45987
HPV33	L1	353	11	TYKNENFKEYI		45988
HPV33	L1	416	10	TYRFVTSQAI		45989
HPV33	L1	374	9	VFQLCKVTL		45990
HPV33	L1	100	9	VWACVGL		45991
HPV33	L1	3	11	VWRPSEATVYL		45992
HPV33	L1	35	8	YYAGSSRL		45993
HPV33	L1	35	9	YYAGSSRL		45994
HPV33	L1	34	9	YYAGSSRL		45995
HPV33	L1	34	10	YYAGSSRL		45996
HPV33	L2	256	11	AFESFDPEDTL		45997
HPV33	L2	241	9	AFLTSPHKL		45998
HPV33	L2	241	10	AFLTSPHKL		45999
HPV33	L2	280	8	DFLDIAL		46000
HPV33	L2	439	9	DFVLHPSYF		46001
HPV33	L2	439	10	DFVLHPSYFI		46002
HPV33	L2	439	11	DFVLHPSYFIL		46003
HPV33	L2	323	9	HYQDLSP		46004
HPV33	L2	46	8	KYGS LGVF		46005
HPV33	L2	46	9	KYGS LGVFF		46006
HPV33	L2	414	8	LFTSSPF		46007
HPV33	L2	414	11	LFTSSPFVPI		46008
HPV33	L2	426	8	PFPFDTI		46009
HPV33	L2	420	8	PFPVISP		46010

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A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV33	L2	420	9	PFVPISPFF		46011
HPV33	L2	420	11	PFVPISPFFP		46012
HPV33	L2	376	9	PMQIISYSTF		46013
HPV33	L2	300	11	RFSRVGQKATL		46014
HPV33	L2	259	8	SFDPEDTL		46015
HPV33	L2	259	10	SFDPEDTLQF		46016
HPV33	L2	192	10	SYENIPMDTF		46017
HPV33	L2	355	8	SYSINDGL		46018
HPV33	L2	162	8	TFTEPSVL		46019
HPV33	L2	251	10	TYDNPAFESF		46020
HPV33	L2	52	8	VFFGGLGI		46021
HPV33	L2	404	11	VMGPDIPSPL		46022
HPV33	L2	446	11	YFILRRRRKRF		46023
HPV33	L2	324	8	YYQDLSPI		46024
HPV33	L2	324	11	YYQDLSPIVPL		46025
HPV45	E1	199	9	AMLAVFEDI		46026
HPV45	E1	512	11	AMLDATHTCW		46027
HPV45	E1	604	10	CFERTWSRL		46028
HPV45	E1	297	9	CMLIEPKL		46029
HPV45	E1	49	9	DHDTQLSI		46030
HPV45	E1	367	9	DMAFOYAQL		46031
HPV45	E1	46	10	DMVDFDTQL		46032
HPV45	E1	352	11	DMVQWAFDNDL		46033
HPV45	E1	431	8	DWRPIVQF		46034
HPV45	E1	431	9	DWRPIVQFL		46035
HPV45	E1	445	9	EFISFLRAL		46036
HPV45	E1	331	8	EWIQRLLTI		46037
HPV45	E1	331	9	EWIQRLLTII		46038
HPV45	E1	605	9	FFERTWSRL		46039
HPV45	E1	605	11	FFERTWSRLDL		46040
HPV45	E1	243	11	GFKTLIKPATL		46041
HPV45	E1	480	8	GMSFIHFL		46042
HPV45	E1	16	8	GWFFVETI		46043
HPV45	E1	485	8	HFLQGAIL		46044
HPV45	E1	485	10	HFLQGAIISF		46045
HPV45	E1	207	9	IYGLSFTDL		46046
HPV45	E1	263	9	KWGVLLIAL		46047
HPV45	E1	263	10	KWGVLLIALL		46048
HPV45	E1	253	8	LYAHIQCL		46049
HPV45	E1	312	8	LYWYRTGI		46050
HPV45	E1	312	11	LYWYRTGISNI		46051
HPV45	E1	347	10	NFDLSDMVQW		46052
HPV45	E1	601	10	NWKCFERTW		46053
HPV45	E1	570	10	PYLESRVTVF		46054
HPV45	E1	437	10	QFLRYQGVEF		46055
HPV45	E1	437	11	QFLRYQGVETI		46056

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A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	Seq. Id. No.
HPV45	E1	412	8	QMNMSQWI	46057
HPV45	E1	355	8	QWAFDNDL	46058
HPV45	E1	417	10	QWIKYRCSKI	46059
HPV45	E1	273	9	RYKCGKNRL	46060
HPV45	E1	440	8	RYQGVFEI	46061
HPV45	E1	440	10	RYQGVFISF	46062
HPV45	E1	440	11	RYQGVFISFL	46063
HPV45	E1	482	10	SFIHFLQGA	46064
HPV45	E1	482	11	SFIHFLQGAH	46065
HPV45	E1	448	9	SFLRALKEF	46066
HPV45	E1	448	10	SFLRALKEFL	46067
HPV45	E1	211	9	SFTDLVRNF	46068
HPV45	E1	493	9	SFVNSSHF	46069
HPV45	E1	493	10	SFVNSSHFW	46070
HPV45	E1	493	11	SFVNSSHFWL	46071
HPV45	E1	477	8	SYFGMSFI	46072
HPV45	E1	477	10	SYFGMSFIHF	46073
HPV45	E1	477	11	SYFGMSFIHFL	46074
HPV45	E1	580	8	TFPHAFPF	46075
HPV45	E1	523	11	TYFDNYMRNAL	46076
HPV45	E1	203	8	VFKDIYGL	46077
HPV45	E1	203	10	VFKDIYGLSF	46078
HPV45	E1	578	8	VFTFPFAF	46079
HPV45	E1	578	10	VFTFPFAFPF	46080
HPV45	E1	594	9	VYEINDKNW	46081
HPV45	E1	314	9	WYRTGISNI	46082
HPV45	E1	524	10	YFDNYMRNAL	46083
HPV45	E1	478	9	YFGMSFIHF	46084
HPV45	E1	478	10	YFGMSFIHFL	46085
HPV45	E1	528	11	YMRNALDGNPI	46086
HPV45	E1	313	10	YWYRTGISNI	46087
HPV45	E2	134	10	CMNYVVWDSI	46088
HPV45	E2	97	11	EWTLQDTCEEL	46089
HPV45	E2	325	11	HWTCGNKNTGI	46090
HPV45	E2	24	9	HYENDSKDI	46091
HPV45	E2	316	9	HYSEISSTW	46092
HPV45	E2	316	11	HYSEISSTWHW	46093
HPV45	E2	143	9	IYYITETGI	46094
HPV45	E2	143	10	IYYITETGIW	46095
HPV45	E2	2	9	KMQTPKESL	46096
HPV45	E2	312	9	KYADHYSEI	46097
HPV45	E2	184	8	KYGNSTW	46098
HPV45	E2	92	9	KYNNEEWT	46099
HPV45	E2	49	9	LFTAREIIGI	46100
HPV45	E2	107	10	LWNTPEPSCF	46101
HPV45	E2	136	8	NYVVWDSI	46102

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	E2	136	11	NYVVWDSIYYI		46103
HPV45	E2	160	8	SYWGVVYI		46104
HPV45	E2	37	8	SYWQLIRL		46105
HPV45	E2	348	8	TFLDVVTI		46106
HPV45	E2	190	11	TWEVQYGGNVI		46107
HPV45	E2	339	11	TYNSEVQRNTF		46108
HPV45	E2	139	8	VWDSIYYI		46109
HPV45	E2	38	11	YWQLIRLENAI		46110
HPV45	E2	144	8	YYITETGI		46111
HPV45	E2	144	9	YYITETGIW		46112
HPV45	E2	144	9	AYAACHIKCI		46113
HPV45	E6	61	11	AYAACHIKCIDF		46114
HPV45	E6	61	11	DFYSRIREL		46115
HPV45	E6	70	9	FYSRIREL	0.0260	46116
HPV45	E6	71	8	LFIVYRDCI		46117
HPV45	E6	52	9	LYNLLIRCL		46118
HPV45	E6	98	9	PYKLPDLCTEL		46119
HPV45	E6	11	11	QFAFKDLF		46120
HPV45	E6	46	8	QFAFKDLFI		46121
HPV45	E6	46	9	VYGETLEKI		46122
HPV45	E6	85	9	VYQFAFKDL		46123
HPV45	E6	44	9	VYQFAFKDLF		46124
HPV45	E6	44	10	VYQFAFKDLFI		46125
HPV45	E6	44	11	YYSNSVYGETL		46126
HPV45	E6	80	11	LFLSTLSF		46127
HPV45	E7	90	8	AYQYRVFRVAL		46128
HPV45	L1	94	11	DYKQTQLCI		46129
HPV45	L1	177	9	DYKOTQLCIL		46130
HPV45	L1	177	10	DYVSRTSI		46131
HPV45	L1	52	8	DYVSRTSIF		46132
HPV45	L1	52	9	EYDLQFIF		46133
HPV45	L1	399	8	EYDLQFIFQL		46134
HPV45	L1	399	10	FFCLRREQL		46135
HPV45	L1	274	9	FFCLRREQLF		46136
HPV45	L1	274	10	FWTVDLKEKF		46137
HPV45	L1	476	10	FYIAGSSRL		46138
HPV45	L1	60	9	FYIAGSSRL		46139
HPV45	L1	60	10	GMEIGRGQPL		46140
HPV45	L1	131	10	GYGAMDFSTL		46141
HPV45	L1	231	10	IHSRHVEEYDL		46142
HPV45	L1	392	11	IFLKNVNVF		46143
HPV45	L1	13	9	IFLKNVNVFPI		46144
HPV45	L1	13	11	IFLQMALW		46145
HPV45	L1	23	8	IFQLCTITL		46146
HPV45	L1	405	9	IFYHAGSSRL		46147
HPV45	L1	59	10	IFYHAGSSRL		46148
HPV45	L1	59	11	IFYHAGSSRL		46148

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L1	6	8	IYGHGIII		46149
HPV45	L1	6	9	IYGHGIIIF		46150
HPV45	L1	6	10	IYGHGIIIFL		46151
HPV45	L1	117	9	IYNPETQRL		46152
HPV45	L1	117	11	IYNPETQRLVW		46153
HPV45	L1	109	9	KFGLPDSTI		46154
HPV45	L1	497	8	KFLVQAGL		46155
HPV45	L1	484	11	KFSSDLQYPL		46156
HPV45	L1	475	11	KFWTVDLKEKF		46157
HPV45	L1	335	8	LFNKPYWL		46158
HPV45	L1	29	11	LWRPSDSTVYL		46159
HPV45	L1	273	10	MFFCLRREQL		46160
HPV45	L1	273	11	MFFCLRREQLF		46161
HPV45	L1	470	8	PYDKLKFW		46162
HPV45	L1	268	8	PYGDSMFF		46163
HPV45	L1	268	10	PYGDSMFFCL		46164
HPV45	L1	403	9	QFIQLCTI		46165
HPV45	L1	403	11	QFIQLCTITL		46166
HPV45	L1	491	8	QYPLGRKF		46167
HPV45	L1	491	9	QYPLGRKFL		46168
HPV45	L1	96	9	QYRVFRVAL		46169
HPV45	L1	272	11	SMFFCLRREQL		46170
HPV45	L1	423	10	SMNSSILENW		46171
HPV45	L1	419	10	SYIHSMNSSI		46172
HPV45	L1	419	11	SYIHSMNSSIL		46173
HPV45	L1	20	10	VFIFLQMAL		46174
HPV45	L1	20	11	VFIFLQMALW		46175
HPV45	L1	293	10	VMGDTVPTDL		46176
HPV45	L1	126	9	VWACVGMEL		46177
HPV45	L1	319	10	VYSPSPSGSI		46178
HPV45	L2	161	8	AFDPSII		46179
HPV45	L2	255	9	AYEPLDTTL		46180
HPV45	L2	255	11	AYEPLDTTSLF		46181
HPV45	L2	275	8	DFMDIURL		46182
HPV45	L2	319	8	PYHDSPI		46183
HPV45	L2	191	10	GVEEIPLQTF		46184
HPV45	L2	318	9	HFYHDSPI		46185
HPV45	L2	52	8	IFLGGIGI		46186
HPV45	L2	400	8	IYTGPDII		46187
HPV45	L2	400	9	IYTGPDIIIL		46188
HPV45	L2	346	8	LFDVYADF		46189
HPV45	L2	438	8	LWPWYYF		46190
HPV45	L2	305	9	MFTRSGKQI		46191
HPV45	L2	453	8	PYFFADGF		46192
HPV45	L2	240	9	QLTHPSSL		46193
HPV45	L2	46	8	QWSSLGIF		46194

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV45	L2	46	9	QWSSLGIFL		46195
HPV45	L2	435	11	QYLLWPWYYF		46196
HPV45	L2	367	9	SFTYPKYSL		46197
HPV45	L2	384	9	SYSNVTVPL		46198
HPV45	L2	250	10	TFDNPAYEPL		46199
HPV45	L2	121	8	TFTGTSGF		46200
HPV45	L2	121	10	TFTGTSGFEI		46201
HPV45	L2	304	10	TMFTRSGKQI		46202
HPV45	L2	444	9	YFPKKRKRI		46203
HPV45	L2	443	10	YFPKKRKRI		46204
HPV45	L2	436	10	YLLWPWYYF		46205
HPV45	L2	442	11	YYPFKKKRKRI		46206
HPV56	E2	52	9	CFKKEGQHI		46207
HPV56	E2	71	10	CMQYVAWKYI		46208
HPV56	E2	113	9	DFEQEAKKF		46209
HPV56	E2	34	11	EWTLRDTCEEL		46210
HPV56	E2	126	11	IWEVHMENESI		46211
HPV56	E2	284	11	IYKDETQRNSF		46212
HPV56	E2	29	9	IYNNEEWTI		46213
HPV56	E2	80	9	IYNGDCGW		46214
HPV56	E2	120	8	KFGCKNIW		46215
HPV56	E2	78	11	KYIYNGDCGW		46216
HPV56	E2	260	11	LFVDVTSTYHW		46217
HPV56	E2	44	10	LWLTEPKKCF		46218
HPV56	E2	277	8	NYSIITH		46219
HPV56	E2	73	8	QYVAWKYI		46220
HPV56	E2	253	8	RFQKYKTL		46221
HPV56	E2	253	9	RFQKYKTLF		46222
HPV56	E2	251	10	RYRFQKYKTL		46223
HPV56	E2	251	11	RYRFQKYKTLF		46224
HPV56	E2	293	8	SFLSHVKI		46225
HPV56	E2	81	8	YNGDCGW		46226
HPV56	E6	106	8	CYRCQSPL		46227
HPV56	E6	60	11	DFPYAVCRVCL		46228
HPV56	E6	83	9	DYSVYGATL		46229
HPV56	E6	134	10	GWTSCLGCW		46230
HPV56	E6	47	9	NFACTELKL		46231
HPV56	E6	62	9	PYAVCRVCL		46232
HPV56	E6	62	10	PYAVCRVCLL		46233
HPV56	E6	62	11	PYAVCRVCLLF		46234
HPV56	E6	127	9	RFHLIAHGW		46235
HPV56	E6	86	9	VYGATLESI		46236
HPV56	E6	45	9	VYNFACTEL		46237
HPV56	E6	45	11	VYNFACTELKL		46238
HPV56	E6	81	11	YYDYSVYGATL		46239
HPV56	E7	69	8	KFVVQLDI		46240

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	E7	90	11	LMGALTVTCPL		46241
HPV56	L1	275	8	AYGDSMWFL		46242
HPV56	L1	275	10	AYGDSMWFFYL		46243
HPV56	L1	422	10	AYLHNMNANL		46244
HPV56	L1	422	11	AYLIINMNANLL		46245
HPV56	L1	101	11	AYQYRVRVRL		46246
HPV56	L1	402	8	EYELQFVF		46247
HPV56	L1	402	10	EYELQFVFQL		46248
HPV56	L1	479	10	FWDVNLQDSF		46249
HPV56	L1	69	9	FYHAGSSRL		46250
HPV56	L1	69	10	FYHAGSSRL		46251
HPV56	L1	282	8	FYLRRQL		46252
HPV56	L1	282	9	FYLRRQLF		46253
HPV56	L1	238	10	GFGAMDFKVL		46254
HPV56	L1	15	8	HYGLCIFL		46255
HPV56	L1	20	11	IFLDVGA VNVF		46256
HPV56	L1	32	8	IFLQMATW		46257
HPV56	L1	68	10	IFYHAGSSRL		46258
HPV56	L1	68	11	IFYHAGSSRL		46259
HPV56	L1	124	9	IYNPDQERL		46260
HPV56	L1	124	11	IYNPDQERLVW		46261
HPV56	L1	8	11	IYRDPLHYGL		46262
HPV56	L1	116	9	KFGLPDTNI		46263
HPV56	L1	478	11	KFDVNLQDSF		46264
HPV56	L1	387	11	KYDARKINQYL		46265
HPV56	L1	476	9	KYKFWDVNL		46266
HPV56	L1	450	10	KYRYVRSTAI		46267
HPV56	L1	340	8	LFNKPYWL		46268
HPV56	L1	1	8	MMLPMMYI		46269
HPV56	L1	5	10	MMYIYRDPPL		46270
HPV56	L1	280	10	MWFYLRREQL		46271
HPV56	L1	280	11	MWFYLRREQLF		46272
HPV56	L1	6	9	MYIYRDPPL		46273
HPV56	L1	426	10	NMNANLLEDW		46274
HPV56	L1	375	11	NMTISTATEQL		46275
HPV56	L1	4	11	PMMYIYRDPPL		46276
HPV56	L1	494	8	QFPLGRKF		46277
HPV56	L1	494	9	QFPLGRKFL		46278
HPV56	L1	406	9	QFVFLCKI		46279
HPV56	L1	406	11	QFVFLCKITL		46280
HPV56	L1	395	11	QYLRHVEEYEL		46281
HPV56	L1	103	9	QYRVRVRL		46282
HPV56	L1	452	8	RYVRSTAI		46283
HPV56	L1	487	9	SFSTDLDQF		46284
HPV56	L1	487	11	SFSTDLDQFPL		46285
HPV56	L1	332	9	SMITSEAQL		46286

Table XVIII
A24 Motif Peptides

Type	Protein	Position	No. of Amino Acids	Sequence	A*2402	Seq. Id. No.
HPV56	L1	332	10	SMITSEAQLF		46287
HPV56	L1	279	11	SMWFYLRREQL		46288
HPV56	L1	61	8	SYVKRTSI		46289
HPV56	L1	61	9	SYVKRTSIF		46290
HPV56	L1	38	11	TWRPSENKVYL		46291
HPV56	L1	29	11	VFIPLQMATW		46292
HPV56	L1	408	9	VFQLCKITL		46293
HPV56	L1	324	11	VYVATPSGSMI		46294
HPV56	L1	281	9	WFYLRREQL		46295
HPV56	L1	281	10	WFYLRREQLF		46296
HPV56	L1	240	9	AFLDRPATL		46297
HPV56	L2	286	11	AFTTRRGGRF		46298
HPV56	L2	275	8	DFMNVAL		46299
HPV56	L2	444	10	FFRRRRRKRI		46300
HPV56	L2	401	9	FYSGPDIVL		46301
HPV56	L2	217	10	GFRRIAAPRL		46302
HPV56	L2	318	9	HYYYDISPI		46303
HPV56	L2	255	9	LFEGTDTSL		46304
HPV56	L2	255	11	LFEGTDTSLAF		46305
HPV56	L2	161	8	LFIDPPVI		46306
HPV56	L2	50	8	LFTYFGGL		46307
HPV56	L2	50	10	LFTYFGGLGI		46308
HPV56	L2	347	8	LYDIYANI		46309
HPV56	L2	121	8	NFTGSGGF		46310
HPV56	L2	121	10	NFTGSGGFEI		46311
HPV56	L2	400	8	PYSGPDI		46312
HPV56	L2	400	10	PYSGPDIVL		46313
HPV56	L2	423	10	PYDVTHDVYI		46314
HPV56	L2	46	9	QWGSIFTYF		46315
HPV56	L2	295	11	RFSRLGRKATI		46316
HPV56	L2	436	9	SFALWPVYF		46317
HPV56	L2	436	10	SFALWPVYFF		46318
HPV56	L2	343	8	SFDGLYDI		46319
HPV56	L2	191	10	SYEEIPMQTF		46320
HPV56	L2	39	9	TWADKILQW		46321
HPV56	L2	52	8	TYFGGLGI		46322
HPV56	L2	430	8	VYIQGSF		46323
HPV56	L2	430	10	VYIQGSFAL		46324
HPV56	L2	430	11	VYIQGSFALW		46325
HPV56	L2	443	11	YFFRRRRRKRI		46326
HPV56	L2	319	8	YYYDISPI		46327

Table XIX
DR_Supermotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E1	319	AAALYWKYTGISNIS	46328	LYWYKYGIS	48425
HPV16	E1	271	ACSWGMVVLVRYK	46329	WGMVVLV	48426
HPV16	E1	243	AFGLTPSIADSIKTL	46330	LTPSIADSI	48427
HPV16	E1	402	AKIVKDCATMCRHYK	46331	VKDCATMCR	48428
HPV16	E1	321	ALYWKYTGISNISEV	46332	WKYTGISNI	48429
HPV16	E1	392	ASAFKSNISQAKIVK	46333	FLKSNISQAK	48430
HPV16	E1	262	CLYLHIQSLACSWGM	46334	LHIQSLACS	48431
HPV16	E1	307	CMMIEPPKLRSTAA	46335	IEPPKLRST	48432
HPV16	E1	18	CNGWFYVEAVVEKKT	46336	WFYVEAVVE	48433
HPV16	E1	531	CWNYIDNLRNALDG	46337	YIDNLRNA	48434
HPV16	E1	355	DCTFELSQMVQWAYD	46338	FELSQMVQW	48435
HPV16	E1	544	DGNLVSMVDVKHRPLV	46339	LVSMVDVKHR	48436
HPV16	E1	609	DKNWKSFSTRWSRL	46340	WKSFFSTRW	48437
HPV16	E1	375	DSEIAYKYAQLADTN	46341	IAYKYAQLA	48438
HPV16	E1	134	DSGYGNTVEVETQQL	46342	YGNTEVETQ	48439
HPV16	E1	238	DWCIAAFGLTPSIAD	46343	IAAFGLTPS	48440
HPV16	E1	377	EIAYKYAQLADTNSN	46344	YKYAQLADT	48441
HPV16	E1	294	EKLKSLKLCVSPMCM	46345	LSKLLCVSP	48442
HPV16	E1	641	FKCVSGQNTNTL---	46346	VSGQNTNTL	48443
HPV16	E1	635	GDSLTPFKCVSGQNT	46347	LPTFKCVSG	48444
HPV16	E1	48	GEDLVDFIVNDNDYL	46348	LVDVFNNDN	48445
HPV16	E1	180	GEVSEHTICQTP	46349	VSEHTICQ	48446
HPV16	E1	439	GGDWKQIVMFLRYQG	46350	WKQIVMFLR	48447
HPV16	E1	485	GKSLFGMSLMKFLQG	46351	LFGMSLMKF	48448
HPV16	E1	499	GSVICFVNSKSHFWL	46352	ICFVNSKSH	48449
HPV16	E1	453	GVFMSFLTALKRFL	46353	FMSFLTALK	48450
HPV16	E1	20	GWFYVEAVVEKKTGD	46354	YVEAVVEKK	48451
HPV16	E1	71	HALPTAOEAKQHRDA	46355	FTAQEAQKH	48452
HPV16	E1	554	HRPLVQLKCPPLIT	46356	LVQLKCPPL	48453
HPV16	E1	241	IAAFGLTPSIADSIK	46357	FGLTPSIAD	48454
HPV16	E1	293	IEKLLSKLLCVSPMC	46358	LLSKLLCVS	48455
HPV16	E1	521	IGMLDDATVPCWNYI	46359	LDDATVPCW	48456
HPV16	E1	254	IKTLQQYCYLYLHIQ	46360	LLQQYCYLY	48457
HPV16	E1	476	ILLYGAANTGKSLFG	46361	YGAANTGKS	48458
HPV16	E1	332	ISEVYGDTPEWIQRQ	46362	YVYGDTPEWI	48459
HPV16	E1	215	KELYGVSFSELVRPF	46363	YGVSFSELY	48460
HPV16	E1	520	KIGMLDDATVPCWNY	46364	MLDDATVPC	48461
HPV16	E1	473	KNCILLYGAANTGKS	46365	ILLYGAANT	48462
HPV16	E1	90	KRKYLVSPLDISGC	46366	YLVSPSLDI	48463
HPV16	E1	613	KSFSTRVWSKSLHIE	46367	FSRTWSKLS	48464
HPV16	E1	508	KSHFWLQPLADAKIG	46368	FWLQPLADA	48465
HPV16	E1	486	KSLFGMSLMKFLQGS	46369	FGMSLMKFL	48466
HPV16	E1	255	KTLQQYCYLYLHIQS	46370	LQQYCYLYH	48467
HPV16	E1	463	LKRFLQGIKKNCIL	46371	FLQGIKKNC	48468
HPV16	E1	300	LLCVSPMCMMEPPK	46372	VSPMCMME	48469
HPV16	E1	493	LMKFLQGSVICFVNS	46373	FLQGSVICF	48470
HPV16	E1	198	LNVLKTSNAKAAMLA	46374	LKTSNAKAA	48471
HPV16	E1	467	LQGIKKNCILLYGA	46375	IPKKNICIL	48472
HPV16	E1	513	LOPLADAKIGMLDDA	46376	LADAKIGML	48473
HPV16	E1	297	LSKLLCVSPMCMME	46377	LLCVSPMCM	48474

Table XIX
DR Supermotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E1	557	LVQLKCPPLITSI	46378	LKCPPLIT	48475
HPV16	E1	217	LYGVSESELVRPKS	46379	VSESELVRP	48476
HPV16	E1	322	LYWYKTGISNISEVY	46380	YKTGISNIS	48477
HPV16	E1	494	MKFLQGSVFCVNSK	46381	LQGSVFCV	48478
HPV16	E1	425	MSQWIKYRCRDVDDG	46382	WIKYRCDRV	48479
HPV16	E1	474	NCILLYGAANTGKSL	46383	LLYGAANTG	48480
HPV16	E1	370	NDIVDDSEIAYKYAQ	46384	VDDSEIAYK	48481
HPV16	E1	59	NDYLTQAETETAHAL	46385	LTQAETETA	48482
HPV16	E1	19	NGWIFYEAVVEKKTG	46386	FYVEAVVEK	48483
HPV16	E1	584	NRLVVFPPNEPFD	46387	VVFPPNEF	48484
HPV16	E1	139	NTEVETQOMLQVEGR	46388	VETQOMLQV	48485
HPV16	E1	340	PEWIRQTVLQHSFN	46389	IQRTVLQH	48486
HPV16	E1	305	PMCMMEIEPKLRSTA	46390	MMIEPKLR	48487
HPV16	E1	312	PPKLRSTAAALYWK	46391	LRSTAAALY	48488
HPV16	E1	563	PPLITSNINAGTDS	46392	LITSNINAG	48489
HPV16	E1	401	QAKIVKDCATMCRIY	46393	IVKDCATMC	48490
HPV16	E1	365	QWAYDNDIVDDSEIA	46394	YDNDIVDDS	48491
HPV16	E1	290	RETIEKLLSKLLCVS	46395	IEKLLSKLL	48492
HPV16	E1	186	RHTICQTPLTNILNV	46396	ICQTPLTNI	48493
HPV16	E1	91	RKYLVSPLSDISGCV	46397	LVSPISDIS	48494
HPV16	E1	540	RNALDGNLVSMGVKH	46398	LDGNLVSMG	48495
HPV16	E1	555	RPLVQLKCPPLITS	46399	VQLKCPPLL	48496
HPV16	E1	127	RRLFESDSGYGNTE	46400	FESEDSGYG	48497
HPV16	E1	578	RWPYLHNRLVVFTFP	46401	YLNRLVVVF	48498
HPV16	E1	223	SELVRPFKSNKSTCC	46402	VRPFKSNKS	48499
HPV16	E1	102	SGCVDNNISPRLKAI	46403	VDNNISPRL	48500
HPV16	E1	509	SHFWLQPLADAKIGM	46404	WLQPLADAK	48501
HPV16	E1	298	SKLLCVSPMCMMEIP	46405	LCVSPMCM	48502
HPV16	E1	549	SMDVKHRPLVQLKCP	46406	VKHRPLVQL	48503
HPV16	E1	110	SPRLKAICIEKQSR	46407	LKAICIEKQ	48504
HPV16	E1	617	SRTWSRLSLHEDEK	46408	WSRLSLHED	48505
HPV16	E1	273	SWGMMVLLLVRYKCG	46409	MVVLLLVRY	48506
HPV16	E1	195	TNILNVLKTNAKAA	46410	LNVLKTSNA	48507
HPV16	E1	339	TPEWIQRTVLQHSF	46411	WIQRTVLQ	48508
HPV16	E1	24	VEAVVEKKTGDAISD	46412	VVEKKTGDA	48509
HPV16	E1	454	VEFMSFLTALKRFLQ	46413	MSFLTALKR	48510
HPV16	E1	588	VFTFPNEPFDENG	46414	FPNEPFD	48511
HPV16	E1	501	VICFVNSKSHFWLQP	46415	FVNSKSHFW	48512
HPV16	E1	278	VLLLVRYKCGKNRET	46416	LVRYKCGKN	48513
HPV16	E1	446	VMFLRYQGVFEFMSFL	46417	LVRYQGVFE	48514
HPV16	E1	86	VQVLKRKYLVSPISD	46418	LKRKYLVSP	48515
HPV16	E1	226	VRPFKSNKSTCCDWC	46419	FKSNKSTCC	48516
HPV16	E1	274	WGMVVLLLVRYKCGK	46420	VVLLLVRYK	48517
HPV16	E1	428	WIKYRCRDVDDGGDW	46421	YRCRDVDDG	48518
HPV16	E1	579	WPLYLHNRLVVFTFPN	46422	LHNRLVVFT	48519
HPV16	E1	382	YAQLADTNSNASAF	46423	LADTNSNAS	48520
HPV16	E1	261	YCLYLHIQSLACSWG	46424	YLHIQSLAC	48521
HPV16	E1	264	YLIHQSLACSWGMMV	46425	IQSLACSWG	48522
HPV16	E2	178	AEKYSKNKVWEVHAG	46426	YSKNKVWEV	48523
HPV16	E2	44	AIYYKAREMGFKIHN	46427	YKAREMGFK	48524

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E2	268	APILAFNSSHKGR	46428	LTAFNSSHK	48525
HPV16	E2	49	AREMGFKHINHQQVVP	46429	MGFKHINHQ	48526
HPV16	E2	229	AVALGTEETQTTQR	46430	LGTEETQTT	48527
HPV16	E2	312	CTLYTAVSSSTWHWTG	46431	YTAVSSTWH	48528
HPV16	E2	347	DQFLSQVKIPKTTV	46432	LSQVKIPKT	48529
HPV16	E2	99	DVSLVYLTAPTGCI	46433	LEVYLTAPT	48530
HPV16	E2	152	EGQVDYYGLYYVHEG	46434	VDYYGLYYV	48531
HPV16	E2	77	ELQLTLETIYNSQYS	46435	LTLETIYNS	48532
HPV16	E2	83	ETIYNSQYSNEKWT	46436	YNSQYSNEK	48533
HPV16	E2	121	EVQFDGDCNTMHT	46437	FDGDCNTM	48534
HPV16	E2	54	FKHINHQQVPTLAVS	46438	INHQQVPTL	48535
HPV16	E2	192	GGQVILCPTSVFSSN	46439	VILCPTSVF	48536
HPV16	E2	326	GHNVKHSIAVTLTY	46440	VKHSIAVT	48537
HPV16	E2	159	GLYYVHEGIRTYFVQ	46441	YVHEGIRTY	48538
HPV16	E2	193	GQVILCPTSVFSSNE	46442	ILCPTSVFS	48539
HPV16	E2	311	HCTLYTAVSSSTWHWT	46443	LYTAVSSTW	48540
HPV16	E2	164	HEGIRTYFVQKDDA	46444	IRTYFVQFK	48541
HPV16	E2	139	HIYICEEASVTVEG	46445	ICEEASVTV	48542
HPV16	E2	59	HQVVPTLAVSKNKAL	46446	VPTLAVSKN	48543
HPV16	E2	33	IDYWKIMRLECAIYY	46447	WKIMRLECA	48544
HPV16	E2	183	KNKVWEVHAGGQVIL	46448	VWEVHAGGQ	48545
HPV16	E2	94	KWTLQDVSLEVYLTA	46449	LQDVSLEVY	48546
HPV16	E2	102	LEVYLTAPTGCIKKH	46450	YLTAPTGCI	48547
HPV16	E2	73	LQAIQLTLETIYN	46451	IELQLTLET	48548
HPV16	E2	350	LSQVKIPKTTVSTG	46452	VKIPKTTTV	48549
HPV16	E2	19	LTHYENDSTDLRDI	46453	YENDSTDLR	48550
HPV16	E2	92	NEKWTLDQDVSLEVYL	46454	WTLQDVSLE	48551
HPV16	E2	58	NHQVVPTLAVSKNKA	46455	VVPTLAVSK	48552
HPV16	E2	70	NKALQAIQLTLET	46456	LQAIQLT	48553
HPV16	E2	211	PEIIRQHLANHPAAT	46457	IRQHLANHP	48554
HPV16	E2	238	QTTIQRPRSEPTGN	46458	IQRPRSEPD	48555
HPV16	E2	194	QVILCPTSVFSSNEV	46459	LCPTSVFSS	48556
HPV16	E2	352	QVKIPKTTVSTGFM	46460	IPKTTTVST	48557
HPV16	E2	262	RDSVDSAPILTAfNS	46461	VDSAPILTA	48558
HPV16	E2	10	RLNVCQDKILTHYEN	46462	VCQDKILTH	48559
HPV16	E2	215	RQHILANHPAATHITKA	46463	LANHPAATH	48560
HPV16	E2	305	RYRFKKHCTLYTAVS	46464	FKKHCTLYT	48561
HPV16	E2	101	SLEVYLTAPTGCIKK	46465	VYLTAPTGC	48562
HPV16	E2	205	SNEVSSPEIRQHILA	46466	VSSPEIRQ	48563
HPV16	E2	210	SPEIRQHILANHPAA	46467	IIRQHILANH	48564
HPV16	E2	147	SVTVVEGQVDYYGLY	46468	VVEGQVDYY	48565
HPV16	E2	138	THIYICEEASVTVE	46469	YICEEASVT	48566
HPV16	E2	257	TKLLHRDSVDSAPIL	46470	LHRDSVDSA	48567
HPV16	E2	64	TLAVSKNKALQAIEL	46471	VSKNKALQA	48568
HPV16	E2	200	TSVFSSNEVSSPEII	46472	FSSNEVSSP	48569
HPV16	E2	256	TTKLLHRDSVDSAPI	46473	LLHRDSVDS	48570
HPV16	E2	321	TWIWTGHNVKHSKAI	46474	WTGHNVKHK	48571
HPV16	E2	155	VDYYGLYYVHEGIRT	46475	YGLYYVHEG	48572
HPV16	E2	36	WKHMRLECAIYYKAR	46476	MRLECAIYY	48573
HPV16	E2	134	YTNWTHIYICEEASV	46477	WTHIYICEE	48574

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E5	1	---MTNLDTASTTLL	46478	MTNLDTAST	48575
HPV16	E5	16	ACFLLCFCVLLCVCL	46479	LLCFCVLLC	48576
HPV16	E5	57	ASAFRCFVYIFVY	46480	FRCFVYII	48577
HPV16	E5	21	CFCVLLCVCLLRPL	46481	VLLCVCLLI	48578
HPV16	E5	62	CFVYIIFVYIPLFL	46482	VYIIFVYIP	48579
HPV16	E5	17	CFLLCFCVLLCVCLL	46483	LCFCVLLCV	48580
HPV16	E5	29	CLLRPLLLSVSTYT	46484	IRPLLLSVS	48581
HPV16	E5	27	CVCLLRPLLLSVST	46485	LLRPLLLS	48582
HPV16	E5	23	CVLLCVCLLRPLLL	46486	LCVCLLRP	48583
HPV16	E5	22	FCVLLCVCLLRPL	46487	LLCVCLLR	48584
HPV16	E5	60	FRCFVYIIFVYIPL	46488	FVYIIFVY	48585
HPV16	E5	69	FVYIPLFLIHTHARF	46489	IFPLFLIHT	48586
HPV16	E5	68	IFVYIPLFLIHTHAR	46490	YIPLFLIHT	48587
HPV16	E5	46	ILVLLWITAASAF	46491	VLLWITAA	48588
HPV16	E5	47	ILVLLWITAASAFR	46492	LLWITAAS	48589
HPV16	E5	32	IRPLLLSVSTYTSLI	46493	LLLSVSTYT	48590
HPV16	E5	64	IVYIIFVYIPLFLIH	46494	IFVYIPLF	48591
HPV16	E5	15	LACFLLCFCVLLCV	46495	FLLCFCVLL	48592
HPV16	E5	19	LLCFCVLLCVCLLR	46496	FCVLLCVCL	48593
HPV16	E5	50	LLWITAASAFRCFI	46497	WITAASAFR	48594
HPV16	E5	36	LLSVSTYTSLIHLVL	46498	VSTYTSII	48595
HPV16	E5	51	LLWITAASAFRCFV	46499	ITAASAFRC	48596
HPV16	E5	48	LVLLWITAASAFRC	46500	LLWITAASA	48597
HPV16	E5	4	MTNLDTASTTLLACF	46501	LDTASTTLL	48598
HPV16	E5	73	PLFLIHTHARFLIT-	46502	LIHTHARFL	48599
HPV16	E5	33	RPLLLSVSTYTSII	46503	LLSVSTYTS	48600
HPV16	E5	44	SLIILVLLWITAAS	46504	ILVLLWIT	48601
HPV16	E5	11	STLLACFLLCFCVL	46505	LLACFLLCF	48602
HPV16	E5	43	TSIIILVLLWITAA	46506	IIILVLLWI	48603
HPV16	E5	12	TTLACFLLCFCVLL	46507	LACFLLCFC	48604
HPV16	E5	28	VCLLRPLLLSVSTY	46508	LIRPLLLSV	48605
HPV16	E5	49	VLLWITAASAFRCF	46509	LWITAASAF	48606
HPV16	E5	39	VSTYTSIIILVLLW	46510	YTSIIILVL	48607
HPV16	E5	65	VYIIFVYIPLFLIHT	46511	IFVYIPLFL	48608
HPV16	E5	66	YIIFVYIPLFLIHTH	46512	FVYIPLFLI	48609
HPV16	E5	71	YIPLFLIHTHARFLI	46513	LFLIHTHAR	48610
HPV16	E5	42	YTSIIILVLLWITA	46514	LIILVLLLW	48611
HPV16	E6	1	---MHQKRTAMFQDP	46515	MHQKRTAMF	48612
HPV16	E6	61	CIVYRDGNPYAVCDK	46516	YRDGNPYAV	48613
HPV16	E6	76	CLKFYKISEYRHYC	46517	FYSKISEYR	48614
HPV16	E6	90	CYSLYGTTLEQQYNK	46518	LYGTTLEQQ	48615
HPV16	E6	54	DFAPRDLICIVYRDGN	46519	FRDLICIVYR	48616
HPV16	E6	35	DIILECVYCKQQLLR	46520	LECVCYCKQQ	48617
HPV16	E6	108	DLIRINCQKPLCP	46521	IRCINCQKP	48618
HPV16	E6	39	ECVYCKQQLLRREVY	46522	YCKQQLLR	48619
HPV16	E6	99	EQYNKPLCDLLIRC	46523	YNKPLCDLL	48620
HPV16	E6	135	FINIRGRWTGRMCS	46524	IRGRWTGR	48621
HPV16	E6	144	GRMCCRSRSTRRE	46525	MSCCRSRT	48622
HPV16	E6	88	HYCYSLYGTTLEQQY	46526	YSLYGTTLE	48623
HPV16	E6	33	IIIDILECVYCKQQL	46527	IILECVYCK	48624

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E6	111	IRCNQKPLCP	46528	INCKPLCP	48625
HPV16	E6	44	KOQLLRREVDFAFR	46529	LLRREVDYDF	48626
HPV16	E6	106	LCDLLRINCQKPL	46530	LLRINCQ	48627
HPV16	E6	103	NKPLCDLLRINCQ	46531	LCDLLRNCI	48628
HPV16	E6	19	PRKLPQLCTELQTTI	46532	LPQLCTELQ	48629
HPV16	E6	69	PYAVCDKCLKFYSKI	46533	VCDKCLKFY	48630
HPV16	E6	30	QTTIHILECVYCK	46534	IHDILECV	48631
HPV16	E6	139	RGRWTRGMSCCRSS	46535	WTGRMSSC	48632
HPV16	E6	52	VYDFARDLCLVYRD	46536	FAFRDLCLV	48633
HPV16	E7	1	---MHGDTPTLHEYM	46537	MHGDTPTLH	48634
HPV16	E7	84	DLLMGTGLGIVCPICS	46538	MGTGLGIVCP	48635
HPV16	E7	12	HEYMLDLQPETTDLY	46539	MLDLQPETT	48636
HPV16	E7	54	HYNIVTFCCCKDSTL	46540	IVTFCCCKD	48637
HPV16	E7	79	IRTEDLLMGTGLGIV	46541	LEDLLMGTL	48638
HPV16	E7	82	LEDLLMGTGLGIVCP	46542	LLMGTLGIV	48639
HPV16	E7	90	LGIVCPICSQKP---	46543	VCPICSQKP	48640
HPV16	E7	87	MGTGLGIVCPICSQKP	46544	LGIVCPICS	48641
HPV16	E7	15	MLDLQPETTDLYCYE	46545	LOPETTDLY	48642
HPV16	E7	69	RLCVQSTHVDIRTL	46546	VQSTHVDIR	48643
HPV16	E7	74	STHVDIRTLLEDLMG	46547	VDIRTLLEDL	48644
HPV16	E7	23	TDLYCYEQLNDSSEE	46548	YCYEQLNDS	48645
HPV16	E7	89	TLGIVCPICSQKP--	46549	IVCPICSQK	48646
HPV16	E7	67	TLRLCVQSTHVDIR	46550	LCVQSTHVD	48647
HPV16	E7	8	TPTLHEYMLDLQPET	46551	LHEYMLDLQ	48648
HPV16	L1	1	---MQVTFIYILVIT	46552	MQVTFIYIL	48649
HPV16	L1	3	-MQVTFIYILVITCY	46553	VTFIYILVI	48650
HPV16	L1	414	ADVMTYIHSMNSTIL	46554	MTYIHSMNS	48651
HPV16	L1	293	AGAVGENVPDDLYIK	46555	VGENVPDDL	48652
HPV16	L1	236	AMDFTTLQANKSEVP	46556	FTTLQANKS	48653
HPV16	L1	38	ATVYLPVPVSKVVS	46557	YLPVPVSK	48654
HPV16	L1	374	CAAISETTYKNTN	46558	ISTSETTYK	48655
HPV16	L1	175	CISMDYKQTQLCLIG	46559	MDYKQTQLC	48656
HPV16	L1	214	CPPLINTVIQDGD	46560	LELINTVIQ	48657
HPV16	L1	54	DEYVARTNIYHAGT	46561	VARTNIYH	48658
HPV16	L1	400	DLQIFQLCKITLTA	46562	FIFQLCKIT	48659
HPV16	L1	303	DLYIKGSGSTANLAS	46563	IKGSGSTAN	48660
HPV16	L1	116	DTSFYNPDTQLRVWA	46564	FYNPDTQLR	48661
HPV16	L1	430	DWNEGLQPPPGTLE	46565	FGLQPPPGG	48662
HPV16	L1	37	EATVYLPVPVSKVV	46566	VYLPVPVVS	48663
HPV16	L1	444	EDTYRFVTSQAIAQ	46567	YRFVTSQAI	48664
HPV16	L1	18	ENDNVYHIFQMSL	46568	VNVYHIFQ	48665
HPV16	L1	477	EYNLKEKFSADLDQF	46569	LKEKFSADL	48666
HPV16	L1	248	EVPLDICTSICKYPD	46570	LDICTSICK	48667
HPV16	L1	27	FFQMSLWLPSEATVY	46571	MSLWLPSEA	48668
HPV16	L1	276	FFYLRRQMFVRHLF	46572	LRQMFVR	48669
HPV16	L1	234	FGAMDFTTLQANKSE	46573	MDFTTLQAN	48670
HPV16	L1	8	FIYILVITCYENDVN	46574	ILVITCYEN	48671
HPV16	L1	239	FTTLQANKSEVPLDI	46575	LQANKSEVP	48672
HPV16	L1	396	GEEYDLQIFQLCKI	46576	YDLQIFQL	48673
HPV16	L1	195	GEHWGKSGSPCTNVA	46577	WKGSPCTN	48674

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	L1	96	GLQYRVFRIHLDPN	46578	YRVFRIHLP	48675
HPV16	L1	355	GNQLFVTVDITRST	46579	LFVTVDIT	48676
HPV16	L1	139	GQPLGVGISHPLLN	46580	LGVGISGHP	48677
HPV16	L1	133	GVEYGRGQPLGVGIS	46581	VGRQPLGV	48678
HPV16	L1	143	GVGISGHPLLNKLLD	46582	ISGHPLLNK	48679
HPV16	L1	76	HPYPIKKPNNKKIL	46583	FPIKKPNNN	48680
HPV16	L1	404	IFQLCKITLTADVMT	46584	LCKITLTAD	48681
HPV16	L1	420	IHSNSTILEDWNFG	46585	MNSTILEDW	48682
HPV16	L1	508	KFTLGKRKATPTTSS	46586	LGKRKATPT	48683
HPV16	L1	409	KITLTADVMTYIHS	46587	LTADVMTYI	48684
HPV16	L1	246	KSEVPLDICTSICKY	46588	VPLDICTSI	48685
HPV16	L1	472	KYTFWEVNLKEKFS	46589	FWEVNLKEK	48686
HPV16	L1	185	LCLIGCKPPIGEHWG	46590	IGCKPPIGE	48687
HPV16	L1	470	LKKYTFWEVNLKEKF	46591	YTFWEVNLK	48688
HPV16	L1	42	LPPVPVSKVSTDEY	46592	VPVSKVST	48689
HPV16	L1	30	MSLWLPSEATVYLP	46593	WLPSEATVY	48690
HPV16	L1	417	MTYIHSNSTILEDW	46594	IHSNSTIL	48691
HPV16	L1	167	NAGVDNRECISMDYK	46595	VDNRECISM	48692
HPV16	L1	61	NIYYHAGTSRLLAG	46596	YHAGTSRL	48693
HPV16	L1	87	NKILVPKVSGLQYRV	46597	LVPKVSGLO	48694
HPV16	L1	337	NKPYWLQRAQGHNG	46598	YWLQRAQGH	48695
HPV16	L1	370	NMSLCAAISETTY	46599	LCAAISETSE	48696
HPV16	L1	86	NNKILVPKVSGLQYR	46600	LVPKVSGLO	48697
HPV16	L1	221	NTVIQDGMVDITGFG	46601	IQDGMVDIT	48698
HPV16	L1	206	NVAVNPGDCPPLLEI	46602	VNPGDCPPL	48699
HPV16	L1	301	PDDLVIKSGSTANL	46603	LYIKSGST	48700
HPV16	L1	250	PLELINTVIQDGMV	46604	ICTSICKYP	48701
HPV16	L1	216	PNKFGPDTSFYNPD	46605	LINTVIQDG	48702
HPV16	L1	109	PVPVSKVSTDEYVA	46606	FGPDTSFY	48703
HPV16	L1	44	QFIFQLCKITLTADV	46607	VSKVSTDE	48704
HPV16	L1	402	QPLGRKFLQAGLK	46608	FQLCKITLT	48705
HPV16	L1	490	QLCLIGCKPPIGEHW	46609	LGRKFLQ	48706
HPV16	L1	184	QLCLIGCKPPIGEHW	46610	LIGCKPPIG	48707
HPV16	L1	357	QLFVTVDITRSTNM	46611	VTVDITRS	48708
HPV16	L1	182	QTQLCLIGCKPPIGE	46612	LCLIGCKPP	48709
HPV16	L1	5	QVTFIYILVITCYEN	46613	FIYILVITC	48710
HPV16	L1	98	QYRVFRIHLDPNKF	46614	VFRIHLDP	48711
HPV16	L1	281	REQMFVRHLFNRA	46615	MFVRHLFNR	48712
HPV16	L1	287	RHLFNRAAGVGENVP	46616	FNRAAGVGE	48713
HPV16	L1	495	RKFLQAGLKAKPKF	46617	LLQAGLKAK	48714
HPV16	L1	126	RLVWACVGVGVGRGQ	46618	WACVGVGVG	48715
HPV16	L1	485	SADLDQFPLGRKFL	46619	LQFPLGRK	48716
HPV16	L1	325	SGSMVTSDAQIFNKP	46620	MVTSDAQIF	48717
HPV16	L1	31	SLWLPSEATVYLPV	46621	LPSEATVYL	48718
HPV16	L1	177	SMDYKQTLCLIGCK	46622	YKQTLCL	48719
HPV16	L1	69	SRLAVGHPIYFPIKK	46623	LAUGHPIYF	48720
HPV16	L1	317	SSNYEFTPSGSMVTS	46624	YFTPSGSM	48721
HPV16	L1	368	STNMSLCAAISET	46625	MSLCAAISET	48722
HPV16	L1	7	TFIYILVITCYENDV	46626	YILVITCYE	48723
HPV16	L1	60	TNIYYHAGTSRLLAG	46627	YYHAGTSRL	48724

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	L1	124	TQRLVWACVGEVGR	46628	LWVACVGE	48725
HPV16	L1	39	TVYLPVPVSKVVST	46629	LPPVPVSKV	48726
HPV16	L1	446	TYRFVTSQAIAQKH	46630	FVTSQAIAQ	48727
HPV16	L1	101	YFRIHLPDPNKFGR	46631	IHLDPNKF	48728
HPV16	L1	6	VTFIYLVITCYEND	46632	IYILVITCY	48729
HPV16	L1	360	VTVVDITRSTNMSLC	46633	VDTRSTNM	48730
HPV16	L1	23	VYHIFQMSLWLPSE	46634	IFFQMSLWL	48731
HPV16	L1	24	YHIFQMSLWLPSEA	46635	FFQMSLWLP	48732
HPV16	L1	260	YPDYIKMVSEPYGDS	46636	YIKMVSEPY	48733
HPV16	L1	447	YRFVTSQAIAQKHT	46637	VTSQAIAQ	48734
HPV16	L1	99	YRVFRIHLPDPNKF	46638	FRIHLPDPN	48735
HPV16	L1	1	---MRIKRSAKRTR	46639	MRHKRSAKR	48736
HPV16	L2	373	ADDFITDTSTTPVPS	46640	FITDTSTTP	48737
HPV16	L2	45	ADQILQYGSMGVFFG	46641	ILQYGSMGV	48738
HPV16	L2	339	AEIEIQITPSTYT	46642	IELQITPST	48739
HPV16	L2	446	AGDFYLHPSYMLRK	46643	FYLHPSYML	48740
HPV16	L2	427	APSLPIVPGSPQYT	46644	LPIVPGSP	48741
HPV16	L2	374	DDFTDSTSTTPVSV	46645	ITDSTTPV	48742
HPV16	L2	242	DPAFITTPTKLITYD	46646	FITTPTKLI	48743
HPV16	L2	283	DPDFLDIVALHRPAL	46647	FLDIVALHR	48744
HPV16	L2	168	DPSVLQPPTPAETGG	46648	VLPQPTPAE	48745
HPV16	L2	46	DQILQYGSMGVFFGG	46649	LOYGSMGVF	48746
HPV16	L2	202	DTFVSTNPNVTSS	46650	IVSTNPNVT	48747
HPV16	L2	341	EIELQITPSTYT	46651	LQITPSTY	48748
HPV16	L2	198	EIPMDTFIVSTNPT	46652	MDTFIVSTN	48749
HPV16	L2	114	ETSFIDAGAPTSVPS	46653	FIDAGAPTS	48750
HPV16	L2	406	GGAYNIPLVSGPDIP	46654	YNIPLVSGP	48751
HPV16	L2	181	GGHFTLSSTISTHIN	46655	FTLSSTIS	48752
HPV16	L2	41	GKTIADQILQYGSMG	46656	IADQILQYG	48753
HPV16	L2	416	GPDPINITDQAPSL	46657	IPINITDQA	48754
HPV16	L2	55	GVFFGGLGIGTSGT	46658	FGGLGIGTG	48755
HPV16	L2	183	HFTLSSTISTHNYE	46659	LSSSTISTH	48756
HPV16	L2	328	IYVYDFSTIDSAAEI	46660	YDFSTIDSA	48757
HPV16	L2	148	ILDINNTVTTVTTHN	46661	INNTVTTVT	48758
HPV16	L2	48	ILQYGSMGVFFGGLG	46662	YGSMGVFFG	48759
HPV16	L2	36	IPKVEGKTIADQILQ	46663	VEGKTIADQ	48760
HPV16	L2	411	IPLVSGPDIPNITD	46664	VSGPDIPIN	48761
HPV16	L2	289	IVALHRPALTSRRTG	46665	LHRPALTSR	48762
HPV16	L2	108	IVSLVEETSHIDAGA	46666	LVEETSHID	48763
HPV16	L2	326	KVHYVYDFSTIDSAAE	46667	YVYDFSTID	48764
HPV16	L2	89	LAPVRPPLTVDPVGP	46668	VRPPLTVDP	48765
HPV16	L2	287	LDIVALHRPALTSRR	46669	VALHRPALT	48766
HPV16	L2	430	LPIVPGSPQYTIA	46670	IVPGSPQYT	48767
HPV16	L2	465	LPYFFSDVSLAA---	46671	FFSDVSLAA	48768
HPV16	L2	393	LSGYIPANTTIPFGG	46672	YIPANTTIP	48769
HPV16	L2	365	NNGLYDIYADDFITD	46673	LYDIYADDF	48770
HPV16	L2	152	NNTVTTVTTHNNPTF	46674	VTTVTTHNN	48771
HPV16	L2	257	NPAYEGIDVDNTLYF	46675	YEGIDVDNT	48772
HPV16	L2	163	NPTFTDPSVLQPTP	46676	FTDPSVLQP	48773
HPV16	L2	400	NTTIPFGGAYNIPLV	46677	IPFGGAYNI	48774

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	L2	146	PAILDINNTVTTVTT	46678	LDINNTVTT	48775
HPV16	L2	284	PDFLDIVALHRPALT	46679	LDIVALHRP	48776
HPV16	L2	420	PINTDQAPSLIV	46680	ITDQAPSLI	48777
HPV16	L2	95	PLTVDPVGPSPSIV	46681	VDVGPSPDP	48778
HPV16	L2	210	PNTVTSSTPIGSRP	46682	VTSSPIPG	48779
HPV16	L2	130	PPDVSGFSITSTDT	46683	VSGFSITS	48780
HPV16	L2	169	PSVLQPPTPAETGGH	46684	LQPTPAET	48781
HPV16	L2	123	PTSVPSIPPDVSGFS	46685	VPSIPPDVS	48782
HPV16	L2	462	RKRLPYFFSDVSLAA	46686	LPYFFSDVS	48783
HPV16	L2	227	RLPYFFSDVSLAA--	46687	LYSRTTQQV	48784
HPV16	L2	464	RPALTSRRRTGIRYSR	46688	YFFSDVSLA	48785
HPV16	L2	294	RPPLTVDPVGPSPDS	46689	LTSRTGIR	48786
HPV16	L2	93	RTGIRYSRIGNKQTL	46690	LTVDPVGPS	48787
HPV16	L2	301	RTGYIPLGTRPTAT	46691	IRYSRIGNK	48788
HPV16	L2	72	SGYIPANTTIPFGGA	46692	YIPLGTRPP	48789
HPV16	L2	394	SMGVFFGGLGIGTGS	46693	IPANTTIPF	48790
HPV16	L2	53	SRPVARLGLYSRTTQ	46694	VFFGGLGIG	48791
HPV16	L2	222	STPIGSRPVARLGL	46695	VARLGLYSR	48792
HPV16	L2	216	STSLGYIPANTTIP	46696	IPGSRPVAR	48793
HPV16	L2	390	TDTLAPVRPPLTVDP	46697	LSGYIPANT	48794
HPV16	L2	86	THNYEEIPMDTIVS	46698	LAPVRPPLT	48795
HPV16	L2	193	TKLITYDNPAVEGID	46699	YEEIPMDTF	48796
HPV16	L2	250	TQQVKVVDPAFITTP	46700	ITYDNPAVE	48797
HPV16	L2	235	TSFIDAGAPTSVPSI	46701	VKVVDPAFI	48798
HPV16	L2	115	TTPVPSVPSTSLGY	46702	IDAGAPTSV	48799
HPV16	L2	382	VDPVGPSPDSIVSLV	46703	VPSVPSTSL	48800
HPV16	L2	98	VHYYDFSTIDSAAE	46704	VGPSDFSV	48801
HPV16	L2	327	VKVVDPAFITTTTKL	46705	YVDFSTIDS	48802
HPV16	L2	238	VPSIPPDVSGFSITT	46706	VDPAFITTP	48803
HPV16	L2	126	VSGFSITSTDTTPA	46707	IPDVSGFS	48804
HPV16	L2	385	YDIYADDFITDTST	46708	VPSTSLGY	48805
HPV16	L2	133	YEGIDVDNTLYFSSN	46709	FSITSTDT	48806
HPV16	L2	260	YIPLGTRPPTATIDL	46710	YADDFITDT	48807
HPV16	L2	75	YSRIGNKQTLRTRSG	46711	IDVDNTLYF	48808
HPV16	L2	306	YYDFSTIDSABEIEL	46712	LGTRPPTAT	48809
HPV16	L2	330	AAAFKSNCOAKYLK	46713	IGNKQTLRT	48810
HPV16	L2	399	AKYLKDCATMCKHYR	46714	FSIDSAAE	48811
HPV18	E1	328	ALYWYRTGISNISEV	46715	FLKSNCOAK	48812
HPV18	E1	409	CMLIQPKLRSSVAA	46716	LKDCATMCK	48813
HPV18	E1	314	CNGWFVYVQAIVDKKT	46717	WYRTGISNI	48814
HPV18	E1	17	CSEVEATQIQVTTNG	46718	IQPKLRSS	48815
HPV18	E1	142	CWTYFDTYMRNALDG	46719	WFYVQAIVD	48816
HPV18	E1	538	CKWGVLLALLRYK	46720	VEATQIQVT	48817
HPV18	E1	278	DMAFEYALLADSNIN	46721	YFDTYMRNA	48818
HPV18	E1	384	DNRWPLYESKITVFE	46722	WGVLLALL	48819
HPV18	E1	583	DSGYGCSEVEATQIQ	46723	FEYALLADS	48820
HPV18	E1	137	DSNFDLSEMVQWAFD	46724	WPYLESRIT	48821
HPV18	E1	362	ERTWSRLDLHEEED	46725	YGCSEVEAT	48822
HPV18	E1	624		46726	FDLSEMVQW	48823
				46727	WSRLDLEE	48824

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	E1	382	ESDMAFEYALLADSN	46728	MAFEYALLA	48825
HPV18	E1	312	ETCMLIQPKLRSSV	46729	MLIQPKLR	48826
HPV18	E1	542	FDTYMRNALDGNPIS	46730	YMRNALDGN	48827
HPV18	E1	500	FIHQGAVISFVNS	46731	FIHQGAVISF	48828
HPV18	E1	268	FILYAHIQCLDKWG	46732	YAHIQCLDC	48829
HPV18	E1	261	FKTLIQPFILYAHIQ	46733	LIQPFILYA	48830
HPV18	E1	506	GAVISFVNSTSHFWL	46734	ISFVNSTSH	48831
HPV18	E1	159	GGNVCSGGSTEADIN	46735	VCSGGSTE	48832
HPV18	E1	643	GNPFGTFKLRAQNH	46736	FGTFKLRAQ	48833
HPV18	E1	19	GWFFVQAIVDKKKTGD	46737	YVQAIVDKK	48834
HPV18	E1	561	HKPLIQLKCPILLT	46738	LIQLKCPPI	48835
HPV18	E1	461	IEFTFLGALKSFLK	46739	ITFLGALKS	48836
HPV18	E1	192	IENVNPQCTIAQLKD	46740	VNPQCTIAQ	48837
HPV18	E1	250	IFGVNPTIAEGFKTL	46741	VNPTIAEGF	48838
HPV18	E1	501	IIHQGAVISFVNST	46742	IQGAVISFV	48839
HPV18	E1	285	ILALLRYKCGKSRLT	46743	LLRYKCGKS	48840
HPV18	E1	339	ISEVMGDTPEWIQRL	46744	VMGDTPEWI	48841
HPV18	E1	464	ITFLGALKSFLKGP	46745	LGALKSFLK	48842
HPV18	E1	593	ITVFEFPNAPFDKN	46746	FEFPNAPPF	48843
HPV18	E1	620	KCFERTWSRLDLHE	46747	FERTWSRLD	48844
HPV18	E1	222	KDTYGLSFTDLVRNF	46748	YGLSFTDLV	48845
HPV18	E1	480	KNCLVFCGPANTGKS	46749	LVFCGPANT	48846
HPV18	E1	562	KPLIQLKCPILLT	46750	LIQLKCPPI	48847
HPV18	E1	89	KRYFAGGSTENSPLG	46751	FAGGSTENS	48848
HPV18	E1	493	KSYFGMSFIHQGA	46752	FGMSFIHFI	48849
HPV18	E1	262	KTLIQPFILYAHIOC	46753	IQPFILYAH	48850
HPV18	E1	527	KVAMLLDDATTTCWTY	46754	MLDDATTTC	48851
HPV18	E1	280	KWGVILALLRYKCG	46755	VLIALLRY	48852
HPV18	E1	520	LEPLTDTKVAMLLDDA	46756	LTDTKVAML	48853
HPV18	E1	85	LHVLKRKFAGGSTEN	46757	LKRKFAGGS	48854
HPV18	E1	564	LIQLKCPILLTTNI	46758	LKCPILLT	48855
HPV18	E1	470	LKSFLKGTTPKKNCLV	46759	FLKGTTPKKN	48856
HPV18	E1	307	LLHVPETCMLIQPK	46760	VPETCMLIQ	48857
HPV18	E1	288	LLRYKCGKSRLTVAK	46761	YKCGKSRLT	48858
HPV18	E1	329	LYWYRTGISNISEVM	46762	YRTGISNIS	48859
HPV18	E1	432	MSQWIRFCRSKIDEG	46763	WIRFCRSKI	48860
HPV18	E1	481	NCLVFCGPANTGKSY	46764	VFCGPANTG	48861
HPV18	E1	18	NGWFYVQAIVDKKKTG	46765	FYVQAIVDK	48862
HPV18	E1	189	NSNIENVNPQCTIAQ	46766	IENVNPQCT	48863
HPV18	E1	347	PEWIORLTIHQHGID	46767	IQRLTIHQH	48864
HPV18	E1	570	PPILLTNIHPAKDN	46768	LTNIHPA	48865
HPV18	E1	319	PPKLRSSVAALYWR	46769	LRSSVAALY	48866
HPV18	E1	63	QAELETAQALFHAQE	46770	LETAQALFH	48867
HPV18	E1	408	QAKYLKDCATMCKHY	46771	YLKDCATMC	48868
HPV18	E1	70	QALFHAQEVHINDAQV	46772	FHAQEVHND	48869
HPV18	E1	266	QPFILYAHIQCLDCK	46773	ILYAHIQCL	48870
HPV18	E1	372	QWAFDNELTDESMDA	46774	FDNELTDES	48871
HPV18	E1	105	RLEVDTELSPRLQEI	46775	VDTELSRL	48872
HPV18	E1	352	RLTIHQHGIDDSNFD	46776	IQHGIDDS	48873
HPV18	E1	297	RLTVAKGLSTLLHVP	46777	VAKGLSTLL	48874

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No	Core Sequence	Core Seq. Id. No.
HPV18	E1	547	RNALDGNPISIDRKH	46778	LDGNPISID	48875
HPV18	E1	130	RRLFTISDSGYGCE	46779	FTISDSGYG	48876
HPV18	E1	585	RWPYLESKITVFEP	46780	YLESRITVF	48877
HPV18	E1	48	SDMVDFIDTQGTFC	46781	YDFDTQGT	48878
HPV18	E1	516	SHFWLEPLTDTKVAM	46782	WLEPLTDTK	48879
HPV18	E1	113	SPRLQEISLNSGQKK	46783	LQEISLNSG	48880
HPV18	E1	433	SQWIRFRCSKIDEGG	46784	IRFRCSKID	48881
HPV18	E1	305	STLLHVPETCMLIQP	46785	LHVPETCML	48882
HPV18	E1	248	TAIFGVNPTIAEGFK	46786	FGVNPTIAE	48883
HPV18	E1	230	TDLVRNFKSKDTTCT	46787	VRNFKSKDT	48884
HPV18	E1	168	TEAIDNGGTEGNSS	46788	IDNGGTEGN	48885
HPV18	E1	346	TPEWQRLLTIQHGI	46789	WQRLLTIQ	48886
HPV18	E1	515	TSHFWLEPLTDTKVA	46790	FWLEPLTDT	48887
HPV18	E1	536	TTCWTFYFDYMRNAL	46791	WTFYFDYMR	48888
HPV18	E1	224	TYGLSFTDLVRNFKS	46792	LSFTDLVRN	48889
HPV18	E1	326	VAAALYWYRTGISNIS	46793	LYWYRTGIS	48890
HPV18	E1	528	VAMLLDDATTTCWTYF	46794	LDDATTTCW	48891
HPV18	E1	51	VDFIDTQGTFCQAE	46795	IDTQGTFC	48892
HPV18	E1	595	VFEFNPAPFPDKNGN	46796	FPNAPFPDK	48893
HPV18	E1	508	VISFVNSTSHFWLEP	46797	FVNSTSHFW	48894
HPV18	E1	23	VQAIVDKKTKGDVISD	46798	IVDKKTKGDV	48895
HPV18	E1	453	VQFLRYQQIEFTFL	46799	LRYYQQIEFI	48896
HPV18	E1	233	VRNFKSKDTTCTDWV	46800	FKSKDTTCT	48897
HPV18	E1	247	VTAIFGVNPTIAEGF	46801	IFGVNPTIA	48898
HPV18	E1	281	WGVLLIALLRYKCGK	46802	LILALLRYK	48899
HPV18	E1	435	WIRFRCSKIDEGDW	46803	FRCSKIDEG	48900
HPV18	E1	586	WPYLESRITVFEPN	46804	LESRTVFE	48901
HPV18	E1	271	YAHIQCLDCKWGVLI	46805	IQCLDCKWG	48902
HPV18	E1	389	YALLADSNNA AFL	46806	LADSNNA	48903
HPV18	E2	150	AGTWDKTKATCVSHRG	46807	WDKTKATCVS	48904
HPV18	E2	240	AKTYGQTSAAATRGH	46808	YGQTSAAATR	48905
HPV18	E2	157	ATCVSHRGLYYVKEG	46809	VSHRGLYYV	48906
HPV18	E2	68	AYNISKSKAHKAIEL	46810	ISKSKAHKA	48907
HPV18	E2	105	CEELWNTEPTHCFFK	46811	LWNTEPTHC	48908
HPV18	E2	183	CEKYNGTGTWEVHFG	46812	YGNTGTWEV	48909
HPV18	E2	135	CMTYVAWDSVYYMTD	46813	YVAWDSVYY	48910
HPV18	E2	212	DDTVSATQLVKLOH	46814	VSATQLVKQ	48911
HPV18	E2	34	DSQIYVWQLIRWENA	46815	IYVWQLIRW	48912
HPV18	E2	142	DSVYYMTDAGTWDKT	46816	YYMTDAGTW	48913
HPV18	E2	106	EELWNTEPTHCFFK	46817	WNTPTHC	48914
HPV18	E2	81	ELQMALQGLAQRYK	46818	MALQGLAQ	48915
HPV18	E2	193	EVHFGNNVIDCNDMS	46819	FGNNVIDCN	48916
HPV18	E2	77	HKAIELQMALQGLAQ	46820	IELQMALQ	48917
HPV18	E2	63	HQVVPAYNISKSAH	46821	VPAYNISK	48918
HPV18	E2	58	IQTLNHQVVPAYNIS	46822	LNHQVVPAY	48919
HPV18	E2	169	KEGYNTFYIEFKSEC	46823	YNTFYIEFK	48920
HPV18	E2	8	KETLSERLSCVQDKI	46824	LSERLSCVQ	48921
HPV18	E2	350	LNTVAIPDSVQILVG	46825	VAIPDSVQI	48922
HPV18	E2	15	LSCVQDKIHDHYEND	46826	VQDKIHDHY	48923
HPV18	E2	136	MTYVAWDSVYYMTDA	46827	VAWDSVYYM	48924

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	E2	198	NNVDCNDSMCSTSD	46828	IDCNDSMCS	48925
HPV18	E2	267	NPLLGAATPTGNKR	46829	LGAATPTGN	48926
HPV18	E2	173	NTFYIEFKSECEKYG	46830	YIEFKSECE	48927
HPV18	E2	228	PSPYSSIVSVGTAKT	46831	YSSTVSVGT	48928
HPV18	E2	281	RRKLCSGNTPIIHL	46832	LCSGNTTPI	48929
HPV18	E2	346	RTKFLNTVAIPDSVQ	46833	FLNTVAIPD	48930
HPV18	E2	313	SDHYRDISSTWHWTG	46834	YRDISSTWH	48931
HPV18	E2	232	SSTVSVGTAKTYGQT	46835	VSVGTAKTY	48932
HPV18	E2	320	SSTWHWTGAGNEKTG	46836	WHWTGAGNE	48933
HPV18	E2	96	TEDWTLQDTCHEELWN	46837	WTLODTCCE	48934
HPV18	E2	347	TKFLNTVAIPDSVQI	46838	LNTVAIPDS	48935
HPV18	E2	234	TVSVGTAKTYGQTS	46839	VGTAITYGQ	48937
HPV18	E2	221	VKQLQHTSPSYSTV	46840	LQHTSPYS	48938
HPV18	E2	266	VNPLLGAATPTGNK	46841	LLGAAATPTG	48939
HPV18	E2	66	VPAYNISKSIAHKA	46842	YNISKSKAH	48940
HPV18	E2	144	VYYMTDAGTWDKTAT	46843	MTDAGTWDK	48941
HPV18	E2	40	WQLIRWENAIFFAAR	46844	IRWENAIFF	48942
HPV18	E5	2	--MLSLIFLCFCVC	46845	LSLIFLCF	48943
HPV18	E5	35	AWVLVYVYVITSP	46846	LVFYVYVI	48944
HPV18	E5	33	AYAWVLVYVYVIT	46847	WVLVYVYV	48945
HPV18	E5	20	CCHVPLLPSPVCMCA	46848	VPLLPSPVCM	48946
HPV18	E5	12	CFVCVMYVCCVPL	46849	CPMYVCCHV	48947
HPV18	E5	59	CFLPMLLLHHAIL	46850	LCMMLLHH	48948
HPV18	E5	16	CMYVCCHVPLLPVVC	46851	VCCHVPLLP	48949
HPV18	E5	58	FCFLPMLLLHHAI	46852	LLPMLLLHI	48950
HPV18	E5	53	FTVYVFCFLPMLLL	46853	YVFCFLPM	48951
HPV18	E5	40	FVYIVVITSPATAFT	46854	IVVITSPAT	48952
HPV18	E5	22	HPVLLPSVCMCAWAY	46855	LLPSVCMCA	48953
HPV18	E5	8	IFLCFCVCMYVCC	46856	FCFCVCMYV	48954
HPV18	E5	43	IVVITSPATAFTVY	46857	ITSPATAFT	48955
HPV18	E5	7	LIFLCFCVCMYVCC	46858	LFCFCVCMY	48956
HPV18	E5	61	LLPMLLLHHAILSL	46859	MLLLHHAI	48957
HPV18	E5	38	LVFYVYVITSPATA	46860	VYVYVITSP	48958
HPV18	E5	31	MCAYAWVLVYVYIV	46861	YAWVLVYVY	48959
HPV18	E5	64	MLLLHHAILSLQ--	46862	LHHAILSL	48960
HPV18	E5	4	MLSLIFLCFCVCMY	46863	LIFLCFCV	48961
HPV18	E5	63	PMMLHHAILSLQ-	46864	LLHHAILSL	48962
HPV18	E5	6	SLIFLCFCVCMYVC	46865	FLFCFCVCM	48963
HPV18	E5	54	TVYVFCFLPMLLLH	46866	VFCFLPML	48964
HPV18	E5	15	VCMYVCCHVPLLPV	46867	YVCCHVPLP	48965
HPV18	E5	57	VFCFLPMLLLHHIA	46868	FLLPMLLLH	48966
HPV18	E5	39	VFYVYVITSPATAF	46869	YIVVITSPA	48967
HPV18	E5	37	VLVFYVYVITSPAT	46870	FVYVYVITS	48968
HPV18	E5	23	VPLLPSPVCMCAWAY	46871	LPSVCMCA	48969
HPV18	E5	41	VYVYVITSPATAFTV	46872	VITSPATA	48970
HPV18	E5	55	VYVFCFLPMLLLHI	46873	FCFLPMLL	48971
HPV18	E5	36	WVLVYVYVYVITSPA	46874	VYVYVYVIT	48972
HPV18	E5	42	YIVVITSPATAFTVY	46875	VITSPATAF	48973
HPV18	E6	30	DIEITCVYCKTVLEL	46876	ITCVYCKTV	48974
HPV18	E6	54	DLFVYVYRDSIPHAAC	46877	VVYRDSIPH	

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	E6	49	EFAFKDLFVVYRDSI	46878	FKDLFVVYR	48975
HPV18	E6	56	FVVYRDSIPHAACHK	46879	YRDSIPHAA	48976
HPV18	E6	106	IRCLRCQKPLNPAEK	46880	LRCQKPLNP	48977
HPV18	E6	33	ITCVYCKTVLELTV	46881	VYCKTVLEL	48978
HPV18	E6	39	KTVLELTVFEFAFK	46882	LELTVFEF	48979
HPV18	E6	93	LEKLTNTGLYNLLIR	46883	LTNTGLYNL	48980
HPV18	E6	55	LFVVYRDSIPHAACH	46884	VYRDSIPHA	48981
HPV18	E6	28	LQDIETCVYCKTVL	46885	IEITCVYCK	48982
HPV18	E6	101	LYNLLIRCLRCQKPL	46886	LLIRCLRCQ	48983
HPV18	E6	103	NLLIRCLRCQKPLNP	46887	IRCLRCQKP	48984
HPV18	E6	98	NTGLYNLLIRCLRCQ	46888	LYNLLIRCL	48985
HPV18	E6	25	NTSLQDIETCVYCK	46889	LQDIETCV	48986
HPV18	E6	14	PYKLPDLCTELNTSL	46890	LPDLCTELN	48987
HPV18	E6	60	RDSIPHAACHKCIDF	46891	IPHAACHKC	48988
HPV18	E6	12	RRPYKLPDLCTELNT	46892	YKLPDLCTE	48989
HPV18	E6	85	SDSVYGDITLEKLTNT	46893	VYGDITLEK	48990
HPV18	E6	34	TCVYCKTVLELTVF	46894	YCKTVLELT	48991
HPV18	E6	47	VFEFAFKDLFVVYRD	46895	FAFKDLFVV	48992
HPV18	E7	1	---MHGPKATLQDIV	46896	MHGPKATLQ	48993
HPV18	E7	89	FQQLFNTLSFVCPW	46897	LFNTLSFV	48994
HPV18	E7	49	HQHLPARRAEPQRHT	46898	LPARRAEPQ	48995
HPV18	E7	44	IDGVNHQHLPARRAE	46899	VNHQHLPAR	48996
HPV18	E7	75	IKLVVLESSADDLRAF	46900	VVLESSADDL	48997
HPV18	E7	8	KATLQDIVLHLEPQN	46901	LQDIVLHLE	48998
HPV18	E7	94	LNTLSFVCPWCASQQ	46902	LSFVCPWCA	48999
HPV18	E7	86	LRAFQQLFNTLSFV	46903	FQQLFNTL	49000
HPV18	E7	97	LSFVCPWCASQQ---	46904	VCPWCASQQ	49001
HPV18	E7	12	QDIVLHLEPQNEIPV	46905	VHLEPQNE	49002
HPV18	E7	21	QNEIPVDLLCHEQLS	46906	IPVDLLCHE	49003
HPV18	E7	90	QQLFNTLSFVCPWC	46907	FLNTLSFVC	49004
HPV18	E7	61	RHTMLCMCKCEARI	46908	MLCMCKCE	49005
HPV18	E7	74	RIKL VVLESSADDLRA	46909	LVLESSADD	49006
HPV18	E7	96	TLSFVCPWCASQQ---	46910	FVCPWCASQ	49007
HPV18	E7	26	VDLLCHEQLSDSEEE	46911	LCHEQLSDS	49008
HPV18	L1	3	-MCLYTRVLILHYHL	46912	LYTRVLILH	49009
HPV18	L1	450	ADVMSYIHSMNSSIL	46913	MSYIHSMNS	49010
HPV18	L1	328	AGTMGDTVPSLYIK	46914	MGDTVPSQL	49011
HPV18	L1	226	APAIGEHWAAGTACK	46915	IGEHWAAGT	49012
HPV18	L1	131	AYQYRVFRVQLPDNP	46916	YRVFRVQLP	49013
HPV18	L1	45	CGHYIILFLRNVNVF	46917	YIILFLRN	49014
HPV18	L1	249	CPPLKNTNTVEIDGD	46918	LELKNNTVLE	49015
HPV18	L1	89	DDYVTPTSIFYHAGS	46919	VTPTSIFYH	49016
HPV18	L1	436	DLOFIFQLCTITLTA	46920	FIFQLCTIT	49017
HPV18	L1	72	DNTVYLPSPSVARVV	46921	VYLPSPSVA	49018
HPV18	L1	151	DTSYNPETQRLVWA	46922	IYNPETQRL	49019
HPV18	L1	466	DWNFGVPPPTTSLV	46923	FGVPPPTT	49020
HPV18	L1	283	EVPLDQCQSICKYPD	46924	LDICQSICK	49021
HPV18	L1	311	FFCLRREQLFARHFW	46925	LRREQLFAR	49022
HPV18	L1	62	FLQMALWRPSDNTVY	46926	MALWRPSDN	49023
HPV18	L1	59	FPFLQMALWRPSDN	46927	FLQMALWRP	49024

Table XIX
DR Supermotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq Id. No.
HPV18	L1	274	FSTLQDTKCEVPLDI	46928	LQDTKCEVP	49025
HPV18	L1	394	FVTVDITPSTNLTI	46929	VVDITPSTN	49026
HPV18	L1	230	GEHWAKGTACKSRPL	46930	WAKGTACKS	49027
HPV18	L1	110	GNYFRVPAGGKNKQ	46931	YFRVPAGGG	49028
HPV18	L1	22	GPLYHPRPLPLHSIL	46932	YHPRPLPLH	49029
HPV18	L1	174	GQPLGVGLSGHIFYN	46933	LGVGLSGHP	49030
HPV18	L1	351	GSCVYSPSPSGSIVT	46934	VYSPSPSGS	49031
HPV18	L1	168	GVEIGRGQPLGVGLS	46935	IGRGQPLGV	49032
HPV18	L1	41	HIICGHIYILFLRN	46936	ICGHIYILF	49033
HPV18	L1	390	HNQLFVTVVDITPST	46937	LFVTVVDIT	49034
HPV18	L1	440	IFQLCTITLTADVMS	46938	LCTITLTAD	49035
HPV18	L1	456	IHSMNSSILEDWNGF	46939	MNSSILEDW	49036
HPV18	L1	50	ILFLRNVNVPFLQ	46940	LRNVNVFPI	49037
HPV18	L1	12	ILHYHLLPLYGPLYH	46941	YHLLPLYGP	49038
HPV18	L1	35	ILVYMVHIIICGHYI	46942	YMVHIIICG	49039
HPV18	L1	281	KCEVPLDICOSICKY	46943	VPLDICQSI	49040
HPV18	L1	146	KFGLPDTSIYNPETQ	46944	LPDTSIYNP	49041
HPV18	L1	508	KLKFWNVDLKEKFSL	46945	FWNVDLKEK	49042
HPV18	L1	123	KQDIPKVSAYQYRVF	46946	IPKVSAYQY	49043
HPV18	L1	220	LCILGCAPAIGEHW	46947	LCGAPAGE	49044
HPV18	L1	464	LEDWNFGVPPPTTS	46948	WNFGVPPPP	49045
HPV18	L1	32	LHSILVYMVHIIICG	46949	ILVYMVHII	49046
HPV18	L1	437	LQIFQLCTITLTAD	46950	IFQLCTITL	49047
HPV18	L1	53	LRNVNVFPFLQMAL	46951	VNVFPFLQ	49048
HPV18	L1	36	LVYMVHIIICGHYI	46952	MVHIIICGH	49049
HPV18	L1	4	MCLYTRVLILHYHLL	46953	YTRVLILHY	49050
HPV18	L1	453	MSYIHSMNSSILEDW	46954	IHSMNSSIL	49051
HPV18	L1	468	NFGVPPPTTSLVDI	46955	VPPPTTSL	49052
HPV18	L1	372	NKPYWLHKAQGIINNG	46956	YWLHKAQGH	49053
HPV18	L1	256	NTVLEDGDMVDITGYG	46957	LEDGDMVDI	49054
HPV18	L1	73	NTVYLPSPSVARVN	46958	YLPSPSVAR	49055
HPV18	L1	513	NVDLKEKFSLDLDQY	46959	LKEKFSLDL	49056
HPV18	L1	55	NVNVFPFLQMALWR	46960	VFPFLQMA	49057
HPV18	L1	210	NVSDYKQQLCICLG	46961	VDYKQQLC	49058
HPV18	L1	285	PLDICOSICKYPDYL	46962	ICOSICKYP	49059
HPV18	L1	251	PLELKNTVLEDGDMV	46963	LKNTVLEDG	49060
HPV18	L1	29	PLPLHSILVYMVHII	46964	LHSILVYMV	49061
HPV18	L1	144	PNKFLPDTISIYNPE	46965	FGLPDTSIY	49062
HPV18	L1	336	PQSLYIKGTGMPASP	46966	LYIKGTGMP	49063
HPV18	L1	27	PRPLPLHSILVYMVH	46967	LPLHSILVY	49064
HPV18	L1	536	QAGLRRKPTIGPRKR	46968	LRRKPTIGP	49065
HPV18	L1	438	QFIFQLCTITLTADV	46969	FQLCTITLT	49066
HPV18	L1	219	QLCILGCAPAIGEHW	46970	ILGCAPAGE	49067
HPV18	L1	392	QLFVTVVDITPSTNL	46971	VTVVDITPS	49068
HPV18	L1	217	OTQLCILGCAPAIGE	46972	LCILGCAPA	49069
HPV18	L1	526	QYPLGRKFLVQAGLR	46973	LGRKFLVQA	49070
HPV18	L1	133	QYRVFRVQLPDPNKF	46974	VFRVQLPDP	49071
HPV18	L1	322	RHFVNRAGTMGDTV	46975	WNRAGTMGD	49072
HPV18	L1	531	RKFLVQAGLRKKPTI	46976	LVQAGLRKK	49073
HPV18	L1	161	RLVWACAGVEIGRGQ	46977	WACAGVEIG	49074

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	L1	9	RVLIHYHLLPLYGP	46978	ILHYHLLPL	49075
HPV18	L1	352	SCVYSPSPSGIVTS	46979	YSPSPSGSI	49076
HPV18	L1	204	SEVDVNDVSDYKQT	46980	VRDNVSDY	49077
HPV18	L1	360	SGSIVTSDSQLFNKP	46981	IVTSDSQLF	49078
HPV18	L1	96	SIFYHAGSRLLTVG	46982	YHAGSRLL	49079
HPV18	L1	34	SILVYMHIIICGHY	46983	YVMVHIIIC	49080
HPV18	L1	521	SLDLQYPLGRKFLV	46984	LDQYPLGRK	49081
HPV18	L1	338	SLYIKGTGMPASPGS	46985	IKGTGMPAS	49082
HPV18	L1	429	SRHVEYDLQFIQL	46986	VEEYDLQFI	49083
HPV18	L1	104	SRLLTGPNPYFRVPA	46987	LTGPNPYFR	49084
HPV18	L1	241	SRPLSQGDCCPLELK	46988	LSQGDCCPL	49085
HPV18	L1	403	STNLTCASTQSPVP	46989	LTICASTQS	49086
HPV18	L1	212	SVDYKQTQLCILGCA	46990	YKQTQLCIL	49087
HPV18	L1	88	TDDYVTPTSFYHAG	46991	YVTPTSFY	49088
HPV18	L1	445	TITLTADVMSYHSM	46992	LTADVMSYI	49089
HPV18	L1	159	TQRLVWACAGVEIGR	46993	LVWACAGVE	49090
HPV18	L1	95	TSIFYHAGSRLLTV	46994	FYHAGSRLL	49091
HPV18	L1	74	TVYLPSPSVARVNT	46995	LPPSVARV	49092
HPV18	L1	482	TYRFVQSAITCQKD	46996	FVQSAITC	49093
HPV18	L1	432	VDTYRFVQSAITCQ	46997	YRFVQSAI	49094
HPV18	L1	58	VEEYDLQFIQLCTI	46998	YDLQFIQL	49095
HPV18	L1	136	VFPIQLMALWRPSD	46999	IFQLMALWR	49096
HPV18	L1	10	VFRVQLPDNPKFGLP	47000	VQLPDNPKF	49097
HPV18	L1	395	VLILHYHLLPLYGFL	47001	LHYHLLPLY	49098
HPV18	L1	37	VTVDITPTSTNLITC	47002	VDITPTSTNL	49099
HPV18	L1	506	YMKLFWNVDLKEKF	47003	VHIIICGHY	49100
HPV18	L1	269	YGAMDFSTLQDTKCE	47004	LKFWNVDLK	49101
HPV18	L1	21	YGPLYHPRPLPLHSI	47005	MDFSTLQDT	49102
HPV18	L1	15	YIILFLRNVNVPFIF	47006	LYHPRPLPL	49103
HPV18	L1	48	YNKLDDESSHAATS	47007	LPLYGPLYH	49104
HPV18	L1	187	YPDYLOMSADPYGDS	47008	LFLRNVNVP	49105
HPV18	L1	295	YRFVQSAITCQKDA	47009	LDDTESSHA	49106
HPV18	L1	483	YRVFRVQLPDNPKFG	47010	YLOMSADPY	49107
HPV18	L1	134	---MVSHRAARRKRA	47011	VQSAITCQ	49108
HPV18	L2	1	--MVSHRAARRKRAS	47012	FRVQLPDN	49109
HPV18	L2	2	ADDMDPAVPVPSKST	47013	MVSHRAARR	49110
HPV18	L2	355	ADKILQWSSLGIFLG	47014	VSHRAARRK	49111
HPV18	L2	44	AGNVFVGTPTSGTHG	47015	MDPAVPVPS	49112
HPV18	L2	180	ASSYSNVTPLTSSW	47016	ILQWSSLG	49113
HPV18	L2	384	ATMFTSRGTQIGARV	47017	VFVGTPTSG	49114
HPV18	L2	306	AVPVPSRSTTSFAFF	47018	YSNVTPLT	49115
HPV18	L2	361	DITLPTSTSVWPIVS	47019	FTRSGTQIG	49116
HPV18	L2	407	DKILQWSSLGIFLGG	47020	VPSRSTTSF	49117
HPV18	L2	45	DNDLFDIYADMDPA	47021	LPSTTSVWP	49118
HPV18	L2	347	DSSVVTSGAPRPTFT	47022	LQWSSLGIF	49119
HPV18	L2	112	EEPISTPLPTVRRV	47023	LFDIYADDM	49120
HPV18	L2	210	EIPLOTFASSGTGEE	47024	VVTSGAPRP	49121
HPV18	L2	197	FAFFKYSPTISSASS	47025	ISSTPLPTV	49122
HPV18	L2	372		47026	LQTFASSGT	49123
				47027	FKYSPTISS	49124

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	L2	259	FEFVDTTLTDFPKSD	47028	VDTLTFDP	49125
HPV18	L2	374	FFKYSPTISSASSYS	47029	YSPTISSAS	49126
HPV18	L2	299	FSRLGQRATMFRSG	47030	LQQRATMFT	49127
HPV18	L2	130	GFDTISAGTTTFAVL	47031	ITSAGTTTP	49128
HPV18	L2	54	GIFLGLGIGTSGT	47032	LGGLGIGTG	49129
HPV18	L2	181	GNVFGTPTTSGTHGY	47033	FVGTPTSST	49130
HPV18	L2	405	GPDIPLPSTTSVWPI	47034	ITLPTSSTV	49131
HPV18	L2	435	GTHYYLWPLYYFIPK	47035	YVLWPLYYF	49132
HPV18	L2	40	GTTLADKILQWSSLG	47036	LADKILQWS	49133
HPV18	L2	96	IEPVGPTDPSIVTLI	47037	VGPTDPSIV	49134
HPV18	L2	282	IIRLHRPALTSRRGT	47038	LHRPALTSR	49135
HPV18	L2	47	ILQWSSGLIFLGLG	47039	WSSGLIFLG	49136
HPV18	L2	106	IVTLIEDSSVVTSGA	47040	LIEDSSVVT	49137
HPV18	L2	350	LFDIYADMDPAVPV	47041	IYADMDPA	49138
HPV18	L2	200	LQTFASSGTGEEPI	47042	FASSGTGEE	49139
HPV18	L2	440	LWPLYYFIPKRRRV	47043	LYYFIPKRR	49140
HPV18	L2	280	MDIIRLHRPALTSRR	47044	IRLHRPALT	49141
HPV18	L2	256	NPAFEPVDTTLTDFP	47045	FEFVDTTLT	49142
HPV18	L2	162	NPAFSDPSIIEVPQT	47046	FSDPSIIEV	49143
HPV18	L2	241	NPEFLTRPSSLITYD	47047	FLTRPSSLI	49144
HPV18	L2	82	NTVVDVGTPRPVVI	47048	VDVGTPRPP	49145
HPV18	L2	182	NVFVGTPTSRGHGE	47049	VGTPTSRGH	49146
HPV18	L2	389	NVTPLTSSWDVPVY	47050	VPLTSSWDV	49147
HPV18	L2	141	PAVLDTSPSSVS	47051	LDITPSSVS	49148
HPV18	L2	242	PEFLTRPSSLITYDN	47052	LTRPSSLIT	49149
HPV18	L2	333	PEYIELQPLVSATED	47053	IELQPLVSA	49150
HPV18	L2	168	PSHIEVPQTGEVAGN	47054	IEVPQTGEV	49151
HPV18	L2	93	PVVEVPVGPPTDPSIV	47055	IEPVGPTDP	49152
HPV18	L2	294	RGTVRFRLGQRATM	47056	VRFRLGQR	49153
HPV18	L2	451	RKRVPYFFADGFVAA	47057	VPYFFADGF	49154
HPV18	L2	91	RPPVIEPVGPTDPS	47058	VVIEPVGPT	49155
HPV18	L2	319	RVHFFYHDISPIAPSP	47059	FYHDISPIA	49156
HPV18	L2	277	SDFMDIIRLHRPALT	47060	MDIIRLHRP	49157
HPV18	L2	371	SFAFFKYSPTISSAS	47061	FFKYSPTIS	49158
HPV18	L2	52	SLGIFLGLGIGTGS	47062	IFLGLGIG	49159
HPV18	L2	81	SNTVVDVGTPRPVVI	47063	VVDVGTPRP	49160
HPV18	L2	332	SPEYIELQPLVSATE	47064	YIELQPLVS	49161
HPV18	L2	378	SPTISSASSYSNVT	47065	ISSASSYSN	49162
HPV18	L2	231	SRAYQQVSVANPEFL	47066	YQQVSVANP	49163
HPV18	L2	249	SSLITYDNPAFEPVD	47067	ITYDNPAFE	49164
HPV18	L2	113	SSVVTSGAPRPTFTG	47068	VTSGAPRPT	49165
HPV18	L2	150	STSVSISITNFTNPA	47069	VSISTNFT	49166
HPV18	L2	192	THGYEEIPLOTFASS	47070	YEEIPLQTF	49167
HPV18	L2	140	TPAVLDITPSSVS	47071	VLDITPSSV	49168
HPV18	L2	428	TQYIGHGTHYVLP	47072	IGHGTHYV	49169
HPV18	L2	128	TSGFDITSAGTTTPA	47073	FDITSAGTT	49170
HPV18	L2	414	TTSVWPIVSPAPAS	47074	WPIVSPAP	49171
HPV18	L2	413	TTSVWPIVSPAPAS	47075	VWPIVSPAP	49172
HPV18	L2	320	VHIFYHDISPIAPSP	47076	YHDISPIAP	49173
HPV18	L2	143	VLDITPSSVS	47077	ITPSSVS	49174

Table XIX
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	L2	35	VPKVEGTTLADKILQ	47078	VEGTTLADK	49175
HPV18	L2	400	VPVYTGPDITLPSTT	47079	YTGPDITLP	49176
HPV18	L2	221	VRRVAGPRLYRAYQ	47080	VAGPRLYSR	49177
HPV18	L2	107	VTLIEDSSVVTSGAP	47081	IEDSSVVTs	49178
HPV18	L2	84	VVDVGPTRRPPVIEP	47082	VGPTRRPPV	49179
HPV18	L2	416	VWPIVSPTAPASTQY	47083	IVSPTAPAS	49180
HPV18	L2	417	WPIVSPTAPASTQYI	47084	VSPTAPAST	49181
HPV18	L2	323	YHDISPIAPSPEYIE	47085	ISPIAPSPE	49182
HPV18	L2	335	YIELQPLVSATEDND	47086	LQPLVSATE	49183
HPV18	L2	234	YQQVSVANPEFLTRP	47087	VSVANPEFL	49184
HPV18	L2	387	YSNVTVPLTSSWDVP	47088	TVPLTSSW	49185
HPV31	E1	299	AAALYWYRTGMSNIS	47089	LYWYRTGMS	49186
HPV31	E1	372	ACAFKLSNSQAKIVK	47090	FLKLSNSQAK	49187
HPV31	E1	251	ACSWGMMVMLMLVRFK	47091	WGMVMLMLV	49188
HPV31	E1	223	AFGVTGTVAEGFKTL	47092	VTGTVAEGF	49189
HPV31	E1	382	AKIVKDCGTMCRHYK	47093	VKDCGTMCR	49190
HPV31	E1	442	ALKLFLKGVPKKNCI	47094	LFLKGVPKK	49191
HPV31	E1	301	ALYWYRTGMSNISDV	47095	WYRTGMSNI	49192
HPV31	E1	287	CMLIQPPKLRSTAAA	47096	IQPPKLRST	49193
HPV31	E1	17	CNGWFFVEAVIDRQT	47097	WFYVEAVID	49194
HPV31	E1	511	CWHYIDNLYRNALDG	47098	YIDNLYRNA	49195
HPV31	E1	556	DDRWPYLHSRLVVFT	47099	WPYLHSRLV	49196
HPV31	E1	589	DKNWKSFRTWCRL	47100	WKSFFSRTW	49197
HPV31	E1	355	DSEIAYKYAQLADSD	47101	IAYKYAQLA	49198
HPV31	E1	133	DSGYGNTETEVTQMV	47102	YGNTETEVTQ	49199
HPV31	E1	335	DTTFDLSQMVQWAYD	47103	FDLSQMVQW	49200
HPV31	E1	218	DWCVAAFGVTGTVAE	47104	VAAFGVTGT	49201
HPV31	E1	357	EIAYKYAQLADSDSN	47105	YKYAQLADS	49202
HPV31	E1	274	EKLLEKLLCISTNCM	47106	LEKLLCIST	49203
HPV31	E1	621	FKCVSGQNIRTL---	47107	VSGQNIRTL	49204
HPV31	E1	234	FKTLLOPYCLYCHLQ	47108	LLQPYCLYC	49205
HPV31	E1	479	GCIISYANSKSHFWL	47109	ISYANSKSH	49206
HPV31	E1	615	GDSFSTFKCVSGQNI	47110	FSTFKCVSG	49207
HPV31	E1	465	GKSYFGMSLSIFLQG	47111	YFGMSLSIF	49208
HPV31	E1	94	GSPLSDISSCVDYNI	47112	LSDISSCVD	49209
HPV31	E1	19	GWFFVEAVIDRQTGD	47113	YVEAVIDRQ	49210
HPV31	E1	534	HKALMQLKCPPLIT	47114	LMQLKCPPL	49211
HPV31	E1	515	IDNLYRNALDGNPVS	47115	YLRNALDGN	49212
HPV31	E1	434	IEFVSFLSALKLFLK	47116	VSFLSALKL	49213
HPV31	E1	273	IEKLEKLLCISTNC	47117	LLEKLLCIS	49214
HPV31	E1	501	IGMLDDATTCPWHYI	47118	LDDATTCPW	49215
HPV31	E1	481	IISYANSKSHFWLQP	47119	YANSKSHFW	49216
HPV31	E1	206	IRPFQSNKSTCTDWC	47120	FQSNKSTCT	49217
HPV31	E1	312	ISDYYGETPEWIERQ	47121	VYGETPEWI	49218
HPV31	E1	474	ISFLOGGCIISYANSK	47122	LQGCISYA	49219
HPV31	E1	535	KALMQLKCPPLITS	47123	MQLKCPPLL	49220
HPV31	E1	195	KELYGVSFMELIRPF	47124	YGVFSMELI	49221
HPV31	E1	500	KIGMLDDATTCPWHY	47125	MLDDATTCP	49222
HPV31	E1	453	KNCILIHGAPNTGKS	47126	ILIHGAPNT	49223
HPV31	E1	268	KNRITIEKLEKLLC	47127	ITIEKLEK	49224

Table XIX
DR Supermotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	E1	89	KRKYVGSPLDISC	47128	YVGSPLSDI	49225
HPV31	E1	593	KSFRTWCRLNLHE	47129	FSRTWCRLN	49226
HPV31	E1	488	KSHFWLQPLADAKIG	47130	FWLQPLADA	49227
HPV31	E1	466	KSYFGMSLSIFLQGC	47131	FGMSLSIFL	49228
HPV31	E1	235	KTLLOPYCLYCHLOS	47132	LQPYCLYCH	49229
HPV31	E1	277	LEKLLCISTNCMLIQ	47133	LLCISTNCM	49230
HPV31	E1	473	LISFLOGCISYANS	47134	FLQGCISY	49231
HPV31	E1	447	LKGVPKKNCILIHGA	47135	VPKKNCILI	49232
HPV31	E1	443	LKFLKGVPKKNCIL	47136	FLKGVPKKN	49233
HPV31	E1	280	LLCISTNCMLIQPK	47137	ISTNCMLIQ	49234
HPV31	E1	259	LMLVRFKCAKNRITI	47138	VRFKCAKNR	49235
HPV31	E1	537	LMQLKCPPLITSNI	47139	LKCPPLIT	49236
HPV31	E1	493	LQPLADAKIGMLDDA	47140	LADAKIGML	49237
HPV31	E1	566	LVVFTFPNPFEDKN	47141	FTFPNPF	49238
HPV31	E1	197	LYGVSMELIRPFQS	47142	VSMELIRP	49239
HPV31	E1	302	LYWYRTGMSNISDY	47143	YRTGMSNIS	49240
HPV31	E1	203	MELIRPFQSNKSTCT	47144	IRPFQSNKS	49241
HPV31	E1	405	MGQWIKSRCDKVSD	47145	WIKSRCDKV	49242
HPV31	E1	258	MLMLVRFKCAKNRIT	47146	VRFKCAKN	49243
HPV31	E1	146	MVQVEEQTTLSGNG	47147	VEEQTTLS	49244
HPV31	E1	454	NCILIHGAPNTGKSY	47148	LHGAPNTG	49245
HPV31	E1	56	NCNVYNNQAEAEATQ	47149	VYNNQAEAE	49246
HPV31	E1	350	NDVMDDEIAEYKYAQ	47150	MDDSEIAYK	49247
HPV31	E1	18	NGWFYVEAVIDROTG	47151	FYVEAVIDR	49248
HPV31	E1	138	NTEVETQOMVQVEEQ	47152	VETQOMVQV	49249
HPV31	E1	320	PEWIERQTVLQHSFN	47153	IERQTVLQHI	49250
HPV31	E1	292	PKLRSTAAALYWYR	47154	LRSTAAALY	49251
HPV31	E1	543	PPLITSNINAGKDD	47155	LITSNINAG	49252
HPV31	E1	70	QALFHAQEAEEHAEA	47156	FHAQEAEEH	49253
HPV31	E1	433	QIEFVSFLSKLFL	47157	FVSFLSALK	49254
HPV31	E1	153	QTTLSGNSDGTTHSE	47158	LSCNGSDGT	49255
HPV31	E1	345	QWAYDNDVMDDEIA	47159	YDNDVMDDS	49256
HPV31	E1	90	RKYVGSPLDISSCV	47160	VGSPLSDIS	49257
HPV31	E1	520	RNALDGNPVSIDVKH	47161	LDGNPVSID	49258
HPV31	E1	175	RNQLVQLKTSNGKAA	47162	LQVLKTSNG	49259
HPV31	E1	126	RRLFELPDSGYGNT	47163	FELPDSGYG	49260
HPV31	E1	558	RWPYLHSRLVVFTFP	47164	YLHSRLVVF	49261
HPV31	E1	489	SHFWLQPLADAKIGM	47165	WLQPLADAK	49262
HPV31	E1	529	SIDVKHKALMQLKCP	47166	VKHKALMQL	49263
HPV31	E1	109	SPRLKAICIENNSKT	47167	LKAICIENN	49264
HPV31	E1	564	SRLVVFTFPNPFED	47168	VVFTFPNPF	49265
HPV31	E1	597	SRTWCRLNLHEEDK	47169	WCRNLHEE	49266
HPV31	E1	101	SSCDVYNISPRLKAI	47170	VDYNISPRL	49267
HPV31	E1	253	SWGVMVMLMLVRFKCA	47171	MVMLMLVRF	49268
HPV31	E1	285	TNCMLIQPPKLRSTA	47172	MLIQPPKLR	49269
HPV31	E1	319	TPEWIERQTVLQHSF	47173	WIERQTVLQ	49270
HPV31	E1	221	VAAFVGTGTVAEGFK	47174	FGVTGTVAE	49271
HPV31	E1	51	VDFIDNCNVYNNQAE	47175	IDNCNVYNN	49272
HPV31	E1	23	VEAVIDROTGDNISE	47176	VIDROTGDN	49273
HPV31	E1	568	VFTFPNPFPPFDKNGN	47177	FPNPFPPDK	49274

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq Id. No.
HPV31	E1	426	VKFLRYQQIEFVSFL	47178	LRYQQIEFV	49275
HPV31	E1	85	VQVLKRKYVGSPLSD	47179	LKRKYVGSF	49276
HPV31	E1	437	VSFLSALKFLKGVF	47180	LSALKFLK	49277
HPV31	E1	200	VSMELIRPFQSNKS	47181	MELIRPFQS	49278
HPV31	E1	254	WGMVMLMLVRFKCAK	47182	VMLMLVRFK	49279
HPV31	E1	559	WPYLHSRLVVFTHP	47183	LHSRLVVF	49280
HPV31	E1	362	YAQLADSDSNACAF	47184	LADSDSNAC	49281
HPV31	E1	244	YCHLQSLACSWGVM	47185	LQSLACSWG	49282
HPV31	E1	241	YCLYCHLQSLACSWG	47186	YCHLQSLAC	49283
HPV31	E2	211	AGIVTKLPTANNNTT	47187	VTKLPTANN	49284
HPV31	E2	70	AKALQAIELQMMLET	47188	LQAIELQMM	49285
HPV31	E2	64	ALSVSKAKALQAIEL	47189	VSKAKALQA	49286
HPV31	E2	49	AREMGHSINIIQVVP	47190	MGHSINHQ	49287
HPV31	E2	275	CGVISAAACTNQTRA	47191	ISAAACTNQ	49288
HPV31	E2	354	DDFLNTVKIPNTVS	47192	LNTVKIPNT	49289
HPV31	E2	94	DWTMQQTSLELYLTA	47193	MQQTSLELY	49290
HPV31	E2	152	EGQVNCCKGIYVHHEG	47194	VNCKGIYV	49291
HPV31	E2	207	EISFAGIVTKLPTAN	47195	FAGIVTKLP	49292
HPV31	E2	77	ELQMMLETLNNTTEYK	47196	MMLETLNNT	49293
HPV31	E2	200	ESVFSSDEISFAGIV	47197	FSSDEISFA	49294
HPV31	E2	210	FAGIVTKLPTANNNT	47198	IVTKLPTAN	49295
HPV31	E2	267	GDSVDSVNCGVISAA	47199	VDSVNCGVI	49296
HPV31	E2	193	GQVIVFPESVFSSDE	47200	IVFPESVFS	49297
HPV31	E2	38	HIRLECFLMYKAREM	47201	LECFLMYKA	49298
HPV31	E2	167	HITYFVNFTTEAKKY	47202	YFVNFTTEA	49299
HPV31	E2	59	HQVVPALSVSKAKAL	47203	VPALSVSKA	49300
HPV31	E2	33	IDYWKHIRECFLMY	47204	WKHIRECV	49301
HPV31	E2	54	IHSINHQVVPALSVS	47205	INHQVVPAL	49302
HPV31	E2	342	IVTLTYISTSQRDDF	47206	LYISTSQR	49303
HPV31	E2	160	IYYVHEGHITYFVNF	47207	VHEGHITYF	49304
HPV31	E2	319	KQLYEQVSSSTWHWTC	47208	YEQVSSSTWH	49305
HPV31	E2	41	LECFLMYKAREMGH	47209	VLMYKAREM	49306
HPV31	E2	102	LELYLTAPTGLCKKH	47210	YLTAPTGL	49307
HPV31	E2	308	LKCLRYRLSKYKQLY	47211	LYRLSKYK	49308
HPV31	E2	357	LNTVKIPNTVSSTG	47212	VKIPNTVS	49309
HPV31	E2	73	LQAIELQMMLETNN	47213	IELQMMLET	49310
HPV31	E2	340	NAIVTLTYISTSQRD	47214	VTLYISTS	49311
HPV31	E2	274	NCGVISAAACTNQTR	47215	VISAAACTN	49312
HPV31	E2	92	NEDWTMQQTSLELYL	47216	WTMQQTSLE	49313
HPV31	E2	58	NHQVVPALSVSKAKA	47217	VVPALSVSK	49314
HPV31	E2	262	NKLLRGDSVDSVNCG	47218	LRGDSVDSV	49315
HPV31	E2	136	NWKFIYLCIDGQCTV	47219	FIYLCIDGQ	49316
HPV31	E2	261	PNKLLRGDSVDSVNC	47220	LLRGDSVDS	49317
HPV31	E2	147	QCTVVEGQVNCCKGIY	47221	VVEGQVNCCK	49318
HPV31	E2	99	QTSLELYLTAPTGL	47222	LELYLTAPT	49319
HPV31	E2	194	QVIVFPESVFSSDEI	47223	VFESVFSS	49320
HPV31	E2	10	RLNV'CODKILEIYEN	47224	VCQDKILEH	49321
HPV31	E2	205	SDEISFAGIVTKLPT	47225	ISFAGIVTK	49322
HPV31	E2	236	SEGVRRATTSTKRPR	47226	VRRATTSTK	49323
HPV31	E2	101	SLELYLTAPTGLCKK	47227	LYLTAPTGC	49324

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	E2	326	SSTWHWTCIDGKHKH	47228	WHWTCIDGK	49325
HPV31	E2	287	TRAVSCPATTPIHL	47229	VSCPATTPI	49326
HPV31	E2	359	TVKIPNTVSVSTGYM	47230	IPNTVSVST	49327
HPV31	E2	270	VDSVNCGVISAAACT	47231	VNCGVISAA	49328
HPV31	E2	44	VLMYKAREMGHSIN	47232	YKAREMGIH	49329
HPV31	E2	62	VPALSVSKAKALQAI	47233	LSVSKAKAL	49330
HPV31	E2	36	WKHRLCECVLMYKAR	47234	IRLECVLMY	49331
HPV31	E2	318	YKQLYEQSVSTWHWT	47235	LYEQSVSTW	49332
HPV31	E2	141	YLCIDGQCTVVEGQV	47236	IDGQCTVVE	49333
HPV31	E2	134	YTNWKFHYLCIDGQC	47237	WKFIYLCID	49334
HPV31	E5	1	--MIELNISTVSIV	47238	MIELNISTV	49335
HPV31	E5	2	--MIELNISTVSIVL	47239	IELNISTVS	49336
HPV31	E5	43	ATLLLLVILWVIAT	47240	LLVILWV	49337
HPV31	E5	62	CFCIYVVFYIPLFV	47241	IYVVFYIPL	49338
HPV31	E5	21	CFCVLLFVCLVIRPL	47242	VLLFVCLVI	49339
HPV31	E5	17	CFLLCFVCLLFVCLV	47243	LCFCVLLFV	49340
HPV31	E5	64	CIVVVFYIPLFVIH	47244	VVFYIPLF	49341
HPV31	E5	29	CLVIRPLVLSVSYA	47245	IRPLVLSVS	49342
HPV31	E5	23	CVLLFVCLVIRPLVL	47246	LFVCLVIRP	49343
HPV31	E5	6	ELNISTVSIVLCFL	47247	ISTVSIVLC	49344
HPV31	E5	22	FCVLLFVCLVIRPLV	47248	LLFVCLVIR	49345
HPV31	E5	69	FIYIPLFVIHTHASF	47249	IPLFVIHHT	49346
HPV31	E5	27	FVCLVIRPLVLSVSV	47250	LVIRPLVLS	49347
HPV31	E5	51	ILWVIATSPRCFCI	47251	VIATSPRC	49348
HPV31	E5	32	IRPLVLSVSVYATLL	47252	LVLSVSVYA	49349
HPV31	E5	9	ISTVSIVLCFLCFC	47253	VSIVLCFLL	49350
HPV31	E5	49	IVLVVIATSPRCF	47254	LWVIATSP	49351
HPV31	E5	65	IYVVFYIPLFVIHT	47255	VFIYIPLFV	49352
HPV31	E5	16	LCFLLCFVCLLFVCL	47256	LLCFCVLLF	49353
HPV31	E5	74	LFVIHTHASFLSQQ-	47257	IHTHASFLS	49354
HPV31	E5	48	LIVILWVIATSPRC	47258	ILWVIATSP	49355
HPV31	E5	47	LLVILWVIATSPRL	47259	VILWVIATS	49356
HPV31	E5	46	LLLIVILWVIATSP	47260	IVILWVIAT	49357
HPV31	E5	60	LRCFCIYVVFYIPL	47261	FCIYVVFYI	49358
HPV31	E5	52	LWVIATSPRCFCIY	47262	IATSPRCF	49359
HPV31	E5	4	MIELNISTVSIVLCF	47263	LNISTVSIV	49360
HPV31	E5	73	PLFVIHTHASFLSQQ	47264	VIHTHASFL	49361
HPV31	E5	33	RPLVLSVSVYATLL	47265	VLSVSVYAT	49362
HPV31	E5	13	SIVLCFLCFCVLLF	47266	LCFLLCFCV	49363
HPV31	E5	38	SVSVYATLLLVIL	47267	VYATLLLI	49364
HPV31	E5	44	TLILLVILWVIATS	47268	LLVILWVI	49365
HPV31	E5	57	TSPRCFCIYVVFYI	47269	LRCFCIYV	49366
HPV31	E5	11	TSIVLCFLCFCVLL	47270	IVLCFLCFC	49367
HPV31	E5	28	VCLVIRPLVLSVSVY	47271	VIRPLVLSV	49368
HPV31	E5	68	VFIYIPLFVIHHTAS	47272	YIPLFVIHT	49369
HPV31	E5	50	VILWVIATSPRCFC	47273	WVIATSPRL	49370
HPV31	E5	15	VLCFLCFCVLLFVC	47274	FLLCFCVLL	49371
HPV31	E5	24	VLLFVCLVIRPLVLS	47275	FVCLVIRPL	49372
HPV31	E5	36	VLSVSVYATLLLV	47276	VSYYATLLL	49373
HPV31	E5	12	VSIVLCFLCFCVLL	47277	VLCFLCFC	49374

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	E5	39	VSVYATLLLLIVILW	47278	YATLLLLV	49375
HPV31	E5	42	YATLLLLIVLVIA	47279	LLLLIVILW	49376
HPV31	E5	71	YIPLFVIHSHASFLS	47280	LFVIHSHAS	49377
HPV31	E5	66	YVVFYIPLFVIHSH	47281	FIYIPLFVI	49378
HPV31	E6	1	---MFKNPAERPKKL	47282	MFKNPAERP	49379
HPV31	E6	21	ALEIPYDELRLNCVY	47283	IPYDELRLN	49380
HPV31	E6	100	CDLLIRCITCQRP	47284	LIRCITCQR	49381
HPV31	E6	69	CLRFYSKVSEFRWYR	47285	FYSKVSEFR	49382
HPV31	E6	47	DFAFDITIVYRDDT	47286	FTDLTIVYR	49383
HPV31	E6	101	DLIRCITCQRP	47287	IRCITCQRP	49384
HPV31	E6	78	EFWRYSVYGTLE	47288	WYRYSVYGT	49385
HPV31	E6	23	EIPYDELRLNCVYCK	47289	YDELRLNCV	49386
HPV31	E6	28	ELRLNCVYCKGQLTE	47290	LNCVYCKGQ	49387
HPV31	E6	128	FHNIGGRWTRGCIAC	47291	IGGRWTRGRC	49388
HPV31	E6	132	GGRWTRGCIACWRP	47292	WTRGCIACW	49389
HPV31	E6	140	IACWRRPRTEQV--	47293	WRRPRTEQ	49390
HPV31	E6	99	ICDLLIRCITCQRP	47294	LLIRCITCQ	49391
HPV31	E6	104	IRCITCQRP	47295	ITCQRP	49392
HPV31	E6	37	KGQLTETEVLDF	47296	LTETEVLDF	49393
HPV31	E6	91	LEKLTNKGICDLIR	47297	LTNKGICDL	49394
HPV31	E6	53	LTIVYRDDTPHGVCT	47298	VYRDDTPHG	49395
HPV31	E6	32	NCVYCKGQLTEVL	47299	YCKGQLTET	49396
HPV31	E6	96	NKGICDLIRCTCQ	47300	ICDLLIRCI	49397
HPV31	E6	62	PHGVCTKCLRFYSKV	47301	VCTKCLRFY	49398
HPV31	E6	12	PRKLHELSSALEIPY	47302	LHELSSALE	49399
HPV31	E6	83	RYSVYGTLEKLTNK	47303	VYGTLEKLT	49400
HPV31	E6	43	TEVLDFAFDITIVY	47304	LDFAFDIT	49401
HPV31	E6	54	TIVYRDDTPHGVCTK	47305	YRDDTPHGV	49402
HPV31	E6	45	VLDFAFDITIVYRD	47306	FAFDITIV	49403
HPV31	E6	81	WYRYSVYGTLEKLT	47307	YSVYGTLE	49404
HPV31	E6	26	YDELRLNCVYCKGQL	47308	LRLNCVYCK	49405
HPV31	E7	1	---MRGETPTLDYV	47309	MRGETPTLQ	49406
HPV31	E7	78	DIRIQELLMGSFGI	47310	ILQELLMGS	49407
HPV31	E7	37	EEDVIDSPAGQAEPD	47311	VIDSPAGQA	49408
HPV31	E7	84	ELLMGSFGIVCPNCS	47312	MGSFGIVCP	49409
HPV31	E7	90	FGIVCPNCSTR---	47313	VCPNCSTR	49410
HPV31	E7	79	IRILQELLMGSFGIV	47314	LQELLMGSF	49411
HPV31	E7	87	MGSFGIVCPNCSTR	47315	FGIVCPNCS	49412
HPV31	E7	54	NYNIWTFCCQCKSTL	47316	IVTFCCQCK	49413
HPV31	E7	12	QDYVLDLQPEATDLH	47317	VLDLQPEAT	49414
HPV31	E7	69	RLCVQSTQVDIRILQ	47318	VQSTQVDIR	49415
HPV31	E7	89	SFGIVCPNCSTR---	47319	IVCPNCSTR	49416
HPV31	E7	74	STQVDIRILQELLMG	47320	VDIRILQEL	49417
HPV31	E7	67	TLRLCVQSTQVDIRI	47321	LCVQSTQVD	49418
HPV31	E7	8	TPTLQDYVLDLQPEA	47322	LQDYVLDLQ	49419
HPV31	E7	15	VLDLQPEATDLHCYE	47323	LQPEATDLH	49420
HPV31	E7	1	---MSLWRPSEATVY	47324	MSLWRPSEA	49421
HPV31	L1	389	ADIMTYIHSMNPAIL	47325	MTYIHSMNP	49422
HPV31	L1	43	ARLLTVGHPYYSIPK	47326	LTVGHPYYS	49423
HPV31	L1	12	ATVYLPVPVPSKVVVS	47327	YLPVPVPSK	49424

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	L1	349	CAAIANSDTTFKSSN	47328	IANSDTTFK	49425
HPV31	L1	150	CISMDYKQTQLCLLG	47329	MDYKQTQLC	49426
HPV31	L1	189	CPPELKNSVIQDGD	47330	LELKNSVIQ	49427
HPV31	L1	28	DEYVTRTNIYYHGS	47331	VTRTNIYYH	49428
HPV31	L1	375	DLQIFQLCKITLSA	47332	FIFQLCKIT	49429
HPV31	L1	278	DLYIKSGSTATLAN	47333	IKSGSGSTAT	49430
HPV31	L1	91	DTSFYNPETQLVWA	47334	FYNPETQLR	49431
HPV31	L1	405	DWNFGLTTPSGSLE	47335	FGLTTPPSG	49432
HPV31	L1	447	DYVFEVNLKEKFS	47336	FWEVNLKEK	49433
HPV31	L1	11	EATVYLPPVPVSKVV	47337	VYLPVPVPS	49434
HPV31	L1	419	EDTYRFVTSQAITCQ	47338	YRFVTSQAI	49435
HPV31	L1	452	EVLNKEKFSADLDQF	47339	LKEKFSADL	49436
HPV31	L1	251	FFYLRREQMFVRHFF	47340	LRREQMFVR	49437
HPV31	L1	209	FGAMDFTALQDTKSN	47341	MDFTALQDT	49438
HPV31	L1	445	FKDYVFEVNLKEKF	47342	YVFEVNLK	49439
HPV31	L1	214	FTALQDTKSNVPLDI	47343	LQDTKSNVP	49440
HPV31	L1	371	GEEFDLQIFQLCKI	47344	FDLQIFQL	49441
HPV31	L1	170	GEHWGKSGPCSNNAI	47345	WGKSGPCSN	49442
HPV31	L1	108	GLEVGRGQPLGVGIS	47346	VGRGQPLGV	49443
HPV31	L1	71	GLQYRVFRVRLPDNP	47347	YRVFRVRLP	49444
HPV31	L1	330	GNQLFVTVVDTRST	47348	LFVTVVDTT	49445
HPV31	L1	114	GQPLGVGISGHPLLN	47349	LGVGISGHP	49446
HPV31	L1	118	GVGISGHPLLNKFFD	47350	ISGHPLLNK	49447
HPV31	L1	50	HPYYSIPKSDNPKKI	47351	YSIPKSDNP	49448
HPV31	L1	379	IFQLCKITLSADIMT	47352	LCKITLSAD	49449
HPV31	L1	395	IHSMPAILEDWNGF	47353	MPAILEDW	49450
HPV31	L1	384	KITLSADIMTYIHS	47354	LSADIMTYI	49451
HPV31	L1	62	KKIVVPKVSGLQYRV	47355	VVPKVSGLQ	49452
HPV31	L1	221	KSNVPLDICNSICKY	47356	VPLDICNSI	49453
HPV31	L1	160	LCLLGCKPPIGEHWG	47357	LGCKPPIGE	49454
HPV31	L1	403	LEDWNEGLTTPPSGS	47358	WNFGLTTPP	49455
HPV31	L1	16	LPPVPVSKVVSTDEY	47359	VPVSKVVST	49456
HPV31	L1	4	MSLWRPSEATVYLP	47360	WRPSEATVY	49457
HPV31	L1	392	MTYIHSMPAILEDW	47361	IHSMPAIL	49458
HPV31	L1	407	NFGLTTPPSGSLEDT	47362	LTPPSGSL	49459
HPV31	L1	35	NIYYHAGSARLLTVG	47363	YHAGSARLL	49460
HPV31	L1	312	NKPYWMQRAQGHNG	47364	YWMQRAQGH	49461
HPV31	L1	345	NMSVCAAIANSDTTF	47365	VCAAIANS	49462
HPV31	L1	181	NNAITPGDCPPELK	47366	ITPGDCPPL	49463
HPV31	L1	292	NSTYPTTPSGSMVTS	47367	YPTTPSGSM	49464
HPV31	L1	196	NSVIQDGDMDVDTGFG	47368	IQDGDMDVT	49465
HPV31	L1	223	NVPLDICNSICKYPD	47369	LDICNSICK	49466
HPV31	L1	61	PKKIVVPKVSGLQYR	47370	IVVPKVSGL	49467
HPV31	L1	225	PLDICNSICKYPDYL	47371	ICNSICKYP	49468
HPV31	L1	191	PLELKNSVIQDGDMDV	47372	LKNSVIQDGD	49469
HPV31	L1	84	PNKFGFPDTSFYNPE	47373	FGFPDTSFY	49470
HPV31	L1	276	PTDLYIKGSGSTATL	47374	LYIKGSGST	49471
HPV31	L1	18	PVPVSKVVSTDEYVT	47375	VSKVVSTDE	49472
HPV31	L1	377	QFIFQLCKITLSADI	47376	FQLCKITLS	49473
HPV31	L1	465	QFPLGRKFLQLQAGYR	47377	LGRKFLQLQ	49474

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq Id. No.
HPV31	L1	159	QLCLLGCKPPIGEHW	47378	LLGCKPPIG	49475
HPV31	L1	332	QLFVTVVDTRSTNM	47379	VTVDTRRS	49476
HPV31	L1	157	QTQLCLLGCKPPIGE	47380	LCLLGCKPP	49477
HPV31	L1	73	QYRVFVRLPDNPKF	47381	VFRVRLPDP	49478
HPV31	L1	262	RHFNRSGTVGESVP	47382	FNRSGTVGE	49479
HPV31	L1	101	RLVWACVGLVGRGQ	47383	WACVGLVGV	49480
HPV31	L1	460	SADLDQFPLGRKFL	47384	LDQFPLGRK	49481
HPV31	L1	300	SGSMVTSDAQFNKP	47385	MVTSDAQIF	49482
HPV31	L1	268	SGTVGESVPTDLYIK	47386	VGESVPTDL	49483
HPV31	L1	152	SMDYKQTQLCLGCK	47387	YKQTQLCLL	49484
HPV31	L1	427	SOAITCQKTAPQPK	47388	ITCQKTAPQ	49485
HPV31	L1	343	STNMSVCAAIANSdT	47389	MSVCAAIAN	49486
HPV31	L1	34	TNIYHAGSARLLTV	47390	YHAGSARL	49487
HPV31	L1	99	TQRLVWACVGLVGR	47391	LVWACVGLV	49488
HPV31	L1	13	TVYLPVPVPSKVST	47392	LPVPVPSKV	49489
HPV31	L1	421	TYRFVTSQAITCQKT	47393	FVTSQAITC	49490
HPV31	L1	76	VFRVRLPDNPKFGFP	47394	VRLPDNPKF	49491
HPV31	L1	335	VTVDTRSTNMSVC	47395	VDTRSTNM	49492
HPV31	L1	235	YPDYLMVAEPPYGDIT	47396	YLMVAEPPY	49493
HPV31	L1	422	YRFVTSQAITCQKTA	47397	VTSQAITCQ	49494
HPV31	L1	74	YRVFVRLPDNPKFG	47398	FRVRLPDNP	49495
HPV31	L1	1	---MRSKRSTKTRKR	47399	MRSKRSTKR	49496
HPV31	L2	45	ADQLRYGSMGVFFG	47400	ILRYGSMGV	49497
HPV31	L2	363	DFTVDTPATHNVSPS	47401	VDTPATHNV	49498
HPV31	L2	276	DPDFDLIALHRPAL	47402	FLDIILHR	49499
HPV31	L2	163	DPSVLQPPPTAETSG	47403	VLQPPTPAE	49500
HPV31	L2	46	DQLRYGSMGVFFGG	47404	LRYGSMGVF	49501
HPV31	L2	361	DTDFVDTPATHNVSV	47405	FTVDTPATH	49502
HPV31	L2	411	DVPIEHAPTQVFPP	47406	IEHAPTQVF	49503
HPV31	L2	87	EASIPRPVPSIDPV	47407	IPIRPVPSI	49504
HPV31	L2	261	EESLYFSNTSHNIAP	47408	LYFSNTSHN	49505
HPV31	L2	193	EIPMDTFIVSTNNEN	47409	MDTFIVSTN	49506
HPV31	L2	114	ESGIVDVGAPAPIPH	47410	IVDVGAPAP	49507
HPV31	L2	262	ESLYFSNTSHNIAPD	47411	YFSNTSHNI	49508
HPV31	L2	333	GESIEMQPLGASATT	47412	IEMQPLGAS	49509
HPV31	L2	439	GGDFYLPSPSYMLKR	47413	FYLHPSYYM	49510
HPV31	L2	177	GHLILLSSSSISTHNY	47414	ILLSSSSIST	49511
HPV31	L2	409	GPDPVPIEHAPTQVFP	47415	VPIEHAPTQ	49512
HPV31	L2	55	GVFFGGLGIGSGSGT	47416	FGGLGIGSG	49513
HPV31	L2	178	HLLSSSSSISTHNYE	47417	LSSSSSISTH	49514
HPV31	L2	41	HTTIADQLRYGSMG	47418	IADQLIRYG	49515
HPV31	L2	321	HYYYDISSINPAGES	47419	YDISSINPA	49516
HPV31	L2	98	IDVPGLDPSIVSLV	47420	VGPLDPSIV	49517
HPV31	L2	282	IHALHRPALTSRNT	47421	LHRPALTSR	49518
HPV31	L2	147	ILDVTSVSTHENPTF	47422	VTSVSTHEN	49519
HPV31	L2	48	ILRYGSMGVFFGGLG	47423	YGSMGVFFG	49520
HPV31	L2	404	IPIFSGPDVPIEHAP	47424	FSGPDVPIE	49521
HPV31	L2	36	IPKIEHTTIADQLR	47425	IEHTTIADQ	49522
HPV31	L2	117	IVDVGAPAPIPHPT	47426	VGAPAPIPH	49523
HPV31	L2	245	KQLITYENPAYETVN	47427	ITYENPAYE	49524

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	L2	280	LDIHLHRPALTSTR	47428	IALLHRPALT	49525
HPV31	L2	338	MQPLGASATTSTLN	47429	LGASATTTS	49526
HPV31	L2	352	NDGLYDIYADTDFTV	47430	LYDIYADTD	49527
HPV31	L2	205	NENITSSSTPIPGVRR	47431	ITSSSTPIPG	49528
HPV31	L2	252	NPAYETVNAEESLYF	47432	YETVNAEES	49529
HPV31	L2	158	NPFTDPSVLQPPTP	47433	FTDPSVLQP	49530
HPV31	L2	145	PAILDVTSVSTHENP	47434	LDVTSVSTH	49531
HPV31	L2	123	PAPIPIPTTSGFDI	47435	IPHPPTTSG	49532
HPV31	L2	277	PDFLDIHLHRPALT	47436	LDIHLHRP	49533
HPV31	L2	423	PFPLAPTTPOVSIFV	47437	LAPTPQVS	49534
HPV31	L2	82	PSTVSEASIPRPV	47438	VSEASIPR	49535
HPV31	L2	164	PSVLQPPTPAETSGH	47439	LQPPTPAET	49536
HPV31	L2	418	PTQVFPPLAPITPQ	47440	VFPPLAPT	49537
HPV31	L2	95	PVSIDPVGPLDPSIV	47441	IDPVGPLDP	49538
HPV31	L2	455	RKRVSFFFTDVSVA	47442	VSYFFTDVS	49539
HPV31	L2	222	RLGLYSKATQVKVI	47443	LYSKATQKV	49540
HPV31	L2	294	RNTVYSRLGNKQTL	47444	VYSRLGNK	49541
HPV31	L2	93	RPPVSIDPVGPLDPS	47445	VSIDPVGPL	49542
HPV31	L2	72	RTGYVPLSTRSTVS	47446	VYPLSTRPS	49543
HPV31	L2	319	RVHYYYDISSINPAG	47447	YYDYDISSIN	49544
HPV31	L2	457	RVSYFFTDVSVA--	47448	YFFTDVSVA	49545
HPV31	L2	387	SAYVPTNTTVPLSTG	47449	VPTNTTVPL	49546
HPV31	L2	176	SGHLLSSSSISTHN	47450	LLSSSSIS	49547
HPV31	L2	115	SGIVDVGAPAPHP	47451	VDVGAPAPI	49548
HPV31	L2	335	SIEMQPLGASATTS	47452	MQPLGASAT	49549
HPV31	L2	89	SIPRPVSIDPVGP	47453	IRPPVSIDP	49550
HPV31	L2	53	SMGVFFGGLGIGSGS	47454	VFFGGLGIG	49551
HPV31	L2	377	STAVQSTSAVSAYVP	47455	VQSTSAVSA	49552
HPV31	L2	371	THNVSPSTAVQSTSA	47456	VSPSTAVQS	49553
HPV31	L2	188	THNYEIPMDTFVS	47457	YEEIPMDTF	49554
HPV31	L2	144	TPAILDVTSVSTHEN	47458	ILDVTSVST	49555
HPV31	L2	19	TQLYQTCCKAAGTCPS	47459	YQTCCKAAGT	49556
HPV31	L2	230	TQQVKVIDPTFLSAP	47460	VKVIDPTFL	49557
HPV31	L2	419	TQVFPPLAPITPQV	47461	FPPPLAPT	49558
HPV31	L2	383	TSASVAYVPTNTVP	47462	VSAYVPTNT	49559
HPV31	L2	132	TSGFDIATTADTPA	47463	FDIATTADT	49560
HPV31	L2	421	VFPPLAPITPQVSI	47464	FPPLAPITPQ	49561
HPV31	L2	101	VGPLDPSVSLVEES	47465	LDPSVSLV	49562
HPV31	L2	320	VHYYYDISSINPAGE	47466	YYDISSINP	49563
HPV31	L2	233	VKVIDPTFLSAPKQL	47467	IDPTFLSAP	49564
HPV31	L2	386	VSAYVPTNTTVPLST	47468	YVPTNTTVP	49565
HPV31	L2	109	VSLVEESGIVDVGAP	47469	VEESGIVDV	49566
HPV31	L2	458	VSYFFTDVSVA---	47470	FFTDVSVA	49567
HPV31	L2	255	YETVNAEESLYFSNT	47471	VNAEESLYF	49568
HPV31	L2	299	YSRLGNKQTLRTRSG	47472	LGNKQTLRT	49569
HPV31	L2	75	YVPLSTRPSTVSEAS	47473	LSTRPSTVS	49570
HPV31	L2	323	YYDISSINPAGESE	47474	ISSINPAGE	49571
HPV33	E1	385	AAAFKSNQAKIVK	47475	FLKSNQAK	49572
HPV33	E1	100	AEDVVDRANPCRTS	47476	VVDRAANPC	49573
HPV33	E1	395	AKIVKDCGIMCRHYK	47477	VKDCGIMCR	49574

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Type	Protein	Position	Sequence	Sequence Id No.	Core Sequence	Core Seq. Id No.
HPV33	E1	287	AKLMSNLLSIPETCM	47478	MSNLLSIP	49575
HPV33	E1	314	ALYWFRMTAMSNISDV	47479	WFRMTAMSN	49576
HPV33	E1	210	AYGISFMELVRPFKS	47480	ISFMELVRP	49577
HPV33	E1	313	CALYWFRMTAMSNISD	47481	YWFRMTAMSN	49578
HPV33	E1	182	CENVTLQESINVLHS	47482	VTLQESINLV	49579
HPV33	E1	300	CMVIEPPKLRSTQCA	47483	IEPPKLRSQ	49580
HPV33	E1	17	CTGWFEVEAVIERRT	47484	WFEVEAVIE	49581
HPV33	E1	602	DENWKSFFSRTWCKL	47485	WKSFFSRTW	49582
HPV33	E1	370	DIAYYAAQLADSN	47486	YYAAQLADS	49583
HPV33	E1	348	DNIFDSEMVQWAYD	47487	FDLSEMVQW	49584
HPV33	E1	266	DRGHILLIRFCS	47488	IIILLIRF	49585
HPV33	E1	368	DSDIAYYAAQLADSN	47489	IAYYAAQLA	49586
HPV33	E1	133	DSGYGNTVEVETQMV	47490	YGNTVEVETQ	49587
HPV33	E1	569	DSRWPLYHSRLTVFE	47491	WPLYHSRLT	49588
HPV33	E1	156	DTNLNDLESSGVGDD	47492	LNDLESSGV	49589
HPV33	E1	231	DWCITGYGISPSVAE	47493	ITGYGISPS	49590
HPV33	E1	120	ECTYRKRKIDELED	47494	YRKRKIDEL	49591
HPV33	E1	79	EDDLNAVCAALKRKFA	47495	LNAVCAALKR	49592
HPV33	E1	298	ETCMVIEPPKLRSTQ	47496	MVIEPPKLR	49593
HPV33	E1	456	FKKFLKGIPKKSCLM	47497	FLKGIPKKS	49594
HPV33	E1	492	GCVISCVNSKSHFWL	47498	ISCVNSKSH	49595
HPV33	E1	628	GGNISTFKCSAGENT	47499	ISTFKCSAG	49596
HPV33	E1	478	GKSYFGMSLIQFLKG	47500	YFGMSLIQF	49597
HPV33	E1	236	GYGISPSVAESLKV	47501	ISPSVAESL	49598
HPV33	E1	547	HRALVOLKCPPLLT	47502	LVOLKCPPL	49599
HPV33	E1	254	HSLYTHLQCLTCDRG	47503	YTHLQCLTC	49600
HPV33	E1	371	IAYYAAQLADSN	47504	YYAAQLADSN	49601
HPV33	E1	528	IDDYMRNALDGN	47505	YMRNALDGN	49602
HPV33	E1	514	IGMDDVTPISWTYI	47506	IDDVTPISW	49603
HPV33	E1	418	IGQWISRCCKTNDG	47507	WISRCCKT	49604
HPV33	E1	271	ILLIRFRCCKNRLT	47508	LIRFRCCKN	49605
HPV33	E1	487	IQFLKGCVISCVNSK	47509	LKGCVISCV	49606
HPV33	E1	325	ISDVQGTTPWIDRL	47510	VQGTTPEWI	49607
HPV33	E1	213	ISFMELVRPFKSDKT	47511	MELVRPFKS	49608
HPV33	E1	234	ITGYGISPSVAESLK	47512	YGISPSVAE	49609
HPV33	E1	208	KEAYGISFMELVRPF	47513	YGISFMELV	49610
HPV33	E1	513	KIGMDDVTPISWTY	47514	MDDVTPIS	49611
HPV33	E1	281	KNRLTVAKLMSNLLS	47515	LTVAKLMSN	49612
HPV33	E1	466	KSCMLICGPANTGKS	47516	MLICGPANT	49613
HPV33	E1	606	KSFRTWCKLDLIE	47517	FSRTWCKLD	49614
HPV33	E1	501	KSHFWLQPLSDAKIG	47518	FWLQPLSDA	49615
HPV33	E1	479	KSYFGMSLIQFLKGC	47519	FGMSLIQFL	49616
HPV33	E1	248	KVLKQHSLYTHLQC	47520	IKQHSLYTH	49617
HPV33	E1	486	LIQFLKGCVISCVNS	47521	FLKGCVISCV	49618
HPV33	E1	460	LKGIPKKSCLMIGCP	47522	IPKKSCLMI	49619
HPV33	E1	247	LKVLKQHSLYTHLQ	47523	LIKQHSLYT	49620
HPV33	E1	50	LLEFIDDSMENSIAQ	47524	FIDDSMENS	49621
HPV33	E1	272	LLLIRFRCCKNRLTV	47525	IRFRCCKNR	49622
HPV33	E1	293	LLSIPETCMVIEPPK	47526	IPETCMVIE	49623
HPV33	E1	159	LNDLESSGVGDDSEV	47527	LESSGVGDD	49624

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	E1	506	LQPSDAKIGMIDDV	47528	LSDAKIGMI	49625
HPV33	E1	579	LTVFEFKNPPFDEN	47529	FEFKNPPFF	49626
HPV33	E1	550	LVQLKCPPLLLTNT	47530	LKCPPLLLT	49627
HPV33	E1	315	LYWFTAMSNISDVQ	47531	FRTAMSNIS	49628
HPV33	E1	216	MELVRPFKSDKTCT	47532	VRPFKSDKT	49629
HPV33	E1	202	NILYKFKEAYGISFM	47533	YKFKEAYGI	49630
HPV33	E1	138	NTEVETQOMVQVES	47534	VETQOMVQQ	49631
HPV33	E1	333	PEWIDRLTVLQISFN	47535	IDRLTVLQI	49632
HPV33	E1	305	PPKLRSQTCALYWFR	47536	LRSQTCALY	49633
HPV33	E1	556	PPLLLTSNTNAGTDS	47537	LLTSNTNAG	49634
HPV33	E1	144	QQMVQVQESQNGDTN	47538	VQVQESQNG	49635
HPV33	E1	358	QWAYDNELTDDSDIA	47539	YDNELTDDS	49636
HPV33	E1	548	RALVQLKCPPLLLTS	47540	VQLKCPPLL	49637
HPV33	E1	267	RGIILLIRFCRSK	47541	IILLIRFR	49638
HPV33	E1	283	RLTVAKLMSNLLSIP	47542	VAKLMSNLL	49639
HPV33	E1	533	RNALDGNESIDVKH	47543	LDGNEISID	49640
HPV33	E1	571	RWPYLHSRLTVFEFK	47544	YLSRLTVF	49641
HPV33	E1	467	SCMLICGPANTGKSY	47545	LICGPANTG	49642
HPV33	E1	502	SHFWLQPLSDAKIGM	47546	WLQPLSDAK	49643
HPV33	E1	542	SIDVKHRLVQLKCP	47547	VKHRALVQL	49644
HPV33	E1	291	SNLLSIPETCMVIEP	47548	LSIPETCMV	49645
HPV33	E1	191	SNVLHSSNTKANILY	47549	LHSSNTKAN	49646
HPV33	E1	610	SRTWCKLDLIEEDK	47550	WCKLDLIEE	49647
HPV33	E1	524	SWTYIDDMYRNALDG	47551	YIDDMYRNA	49648
HPV33	E1	312	TCALYWFRAMSNIS	47552	LYWFRAMSN	49649
HPV33	E1	18	TGWEFEAVIERRTG	47553	FEVEAVIER	49650
HPV33	E1	332	TPEWIDRLTVLQHSF	47554	WIDRLTVLQ	49651
HPV33	E1	286	VAKLMSNLLSIPETC	47555	LMSNLLSIP	49652
HPV33	E1	85	VCALKRKFAACSQSA	47556	LKRKFAACS	49653
HPV33	E1	23	VEAVIERRTGDNISE	47557	VIERRTGDN	49654
HPV33	E1	581	VFEFKNPPFDENG	47558	FKNPPFDE	49655
HPV33	E1	439	VQLLRYQNIETAF	47559	LRYNIEFT	49656
HPV33	E1	219	VRPFKSDKTCTDWC	47560	FKSDKTCT	49657
HPV33	E1	520	VTPISWTYIDDMYRN	47561	ISWTYIDDY	49658
HPV33	E1	572	WPYLHSRLTVFEFKN	47562	LHSRLTVFE	49659
HPV33	E1	375	YLAQLADSNNSAAFL	47563	LADSNNSAA	49660
HPV33	E1	257	YTHLQCLTCDRGIII	47564	LOCLTCDRG	49661
HPV33	E2	1	---MEEISARLNAVQ	47565	MEEISARLN	49662
HPV33	E2	178	AAKYSKTQMWEVHV	47566	YSKTQMWEV	49663
HPV33	E2	72	AFQVIELQMALETLS	47567	VIELQMALE	49664
HPV33	E2	49	AKQMGFSILCHQVVP	47568	MGFSLCHQ	49665
HPV33	E2	44	ALLYTAKQMGFSLC	47569	YTAKQMGFS	49666
HPV33	E2	240	AQPLTKLFCADPALD	47570	LTKLFCADP	49667
HPV33	E2	58	CHQVPSLLASKTKA	47571	VVPSLLASK	49668
HPV33	E2	250	DPALDNRRTARTATNC	47572	LDNRRTART	49669
HPV33	E2	139	EYIEEDTCTMTGT	47573	IEEDTCTM	49670
HPV33	E2	16	EKILDLYEADKTDLP	47574	LDLYEADKT	49671
HPV33	E2	77	ELQMALETLSKSQYS	47575	MALETLSKS	49672
HPV33	E2	188	EVHVGGOVIVCPTSI	47576	VGGQVIVCP	49673
HPV33	E2	171	FKYFKEDAAKYSKTQ	47577	FKEDAAKYS	49674

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	E2	73	FQVIELQMALETLSK	47578	IELQMALET	49675
HPV33	E2	54	FSHLCHQVVPSSLAS	47579	LCHQVVPSSL	49676
HPV33	E2	192	GGQVIVCPTSISNQ	47580	VIVCPTSIS	49677
HPV33	E2	193	GQVIVCPTSISNQI	47581	IVCPTSISS	49678
HPV33	E2	59	HQVVPSSLASKTKAF	47582	VPSLLASKT	49679
HPV33	E2	35	HWKLRMECALLYA	47583	LIRMECALL	49680
HPV33	E2	33	IEHWKLRMECALLY	47584	WKLIRMECA	49681
HPV33	E2	158	IGMYIHNCEKVFYFK	47585	YYHNCEKV	49682
HPV33	E2	140	IYIIEEDTCTMTGK	47586	IEEDTCTMV	49683
HPV33	E2	300	KELYSMSSTWHWTS	47587	YSSMSSTWH	49684
HPV33	E2	183	KTMWVHVHGGQVIV	47588	MWEVHVGGQ	49685
HPV33	E2	19	LDLYEADKTDLPISQI	47589	YEADKTDLP	49686
HPV33	E2	102	LEVWLCEPPKCFKQ	47590	WLCEPPKCF	49687
HPV33	E2	338	LGTVKIPPTVQISTG	47591	VKIPPTVQI	49688
HPV33	E2	38	LIRMECALLYTAKQM	47592	MECALLYTA	49689
HPV33	E2	296	LKPYKELYSMSSTW	47593	YKELYSMS	49690
HPV33	E2	11	LNAVQEKILDLYEAD	47594	VQEKILDLY	49691
HPV33	E2	243	LTKLFCADPALDNRT	47595	LFCADPALD	49692
HPV33	E2	321	NGIVTVTFVTEQQQ	47596	VTVTFVTEQ	49693
HPV33	E2	30	PSQIEHWKLRMECA	47597	IEHWKLRIM	49694
HPV33	E2	199	PTSISNQISTTETA	47598	ISSNQISTT	49695
HPV33	E2	335	QMFLGTVKIPPTVQI	47599	LGTVKIPPT	49696
HPV33	E2	333	QQQMFLGTVKIPPTV	47600	MFLGTVKIP	49697
HPV33	E2	268	QRTVCSNVAPIVHL	47601	VCSNVAPI	49698
HPV33	E2	99	QTSLEVWLCEPPKCF	47602	LEVWLCEPP	49699
HPV33	E2	194	QVIVCPTSISNQIS	47603	VCPTSISN	49700
HPV33	E2	94	QWTLQQTSLSEVWLCE	47604	LQQTSLSEVW	49701
HPV33	E2	101	SLEVWLCEPPKCFKK	47605	VWLCEPPKC	49702
HPV33	E2	204	SNQISTTETADIQTD	47606	ISTTETADI	49703
HPV33	E2	147	TCTMVTGKVDYIGMY	47607	MVTGKVDYI	49704
HPV33	E2	152	TGKVDYIGMYIHNCE	47608	VDYIGMYI	49705
HPV33	E2	70	TKAFQVIELQMALET	47609	FQVIELQMA	49706
HPV33	E2	244	TKLFCADPALDNRTA	47610	FCADPALDN	49707
HPV33	E2	92	TSQWTLQQTSLSEVWL	47611	WTLQQTSLSE	49708
HPV33	E2	155	VDYIGMYIHNCEKV	47612	IGMYIHNCE	49709
HPV33	E2	62	VPSLLASKTKAFOVI	47613	LLASKTKAF	49710
HPV33	E2	36	WKLIRMECALLYTAK	47614	IRMECALLY	49711
HPV33	E2	170	YFKYFKEDAACYSKT	47615	YFKEDAACY	49712
HPV33	E2	299	YKELYSMSSTWHWT	47616	LYSSMSSTW	49713
HPV33	E2	134	YTNWGEIYIIEEDTC	47617	WGEIYIIEE	49714
HPV33	E5	1	---MIFVFLCFILF	47618	MIFVFLCF	49715
HPV33	E5	2	--MIFVFLCFILFL	47619	IFVFLCFI	49716
HPV33	E5	3	-MIFVFLCFILFLC	47620	FVFLCFIL	49717
HPV33	E5	33	AWLLVLVLLLVFVG	47621	LVLVLLLV	49718
HPV33	E5	11	CFILFLCLSLRLPL	47622	LFLCLSLLL	49719
HPV33	E5	66	CINFHQAQIMTQOE--	47623	FHAQIMTQQ	49720
HPV33	E5	17	CLSLRLPLILSIST	47624	LLLRPLILS	49721
HPV33	E5	55	CYLFLFLYLPMMCINF	47625	LFLYLPMMC	49722
HPV33	E5	54	FCYLLFLYLPMMCIN	47626	LLFLYLPMM	49723
HPV33	E5	12	FILFLCLSLRLRLPLI	47627	FLCLSLLLR	49724

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	E5	59	FLYLPMMCINFHQAQ	47628	LPMMCINFH	49725
HPV33	E5	6	FVFLCFILFLCSL	47629	VLCFILFLC	49726
HPV33	E5	47	GSPLKIFFCYLLFLY	47630	LKIFFCYLL	49727
HPV33	E5	5	IFVFLCFILFLCLS	47631	FVLCFILFL	49728
HPV33	E5	13	ILFLCLSLRLPLIL	47632	LCLSLLRP	49729
HPV33	E5	29	ISTYAWLLVLVLLW	47633	YAWLLVLVL	49730
HPV33	E5	10	LCFILFLCLSLRLP	47634	ILFLCLSL	49731
HPV33	E5	58	LFLYLPMMCINFHQAQ	47635	YLPMMCINF	49732
HPV33	E5	50	LKIFFCYLLFLYLP	47636	FFCYLLFLY	49733
HPV33	E5	57	LLFLYLPMMCINFHA	47637	LYLPMMCIN	49734
HPV33	E5	40	LLWVFGVSGPLKIFF	47638	WVFGVSGPLK	49735
HPV33	E5	41	LLWVFGVSGPLKIFFC	47639	VFGVSGPLKI	49736
HPV33	E5	22	LRPLISISTYAWLL	47640	LILSISTYA	49737
HPV33	E5	18	LSLLRLPLISISTY	47641	LLRPLILSI	49738
HPV33	E5	38	LVLVLLWVFGVSGPLKI	47642	LLWVFGVSP	49739
HPV33	E5	36	LVLVLLWVFGVSGPL	47643	VLLWVFGV	49740
HPV33	E5	42	LWVFGVSGPLKIFFCY	47644	FVGSPLKIF	49741
HPV33	E5	49	PLKIFFCYLLFLYLP	47645	IFFCYLLFL	49742
HPV33	E5	23	RPILSISTYAWLLV	47646	ILSISTYAW	49743
HPV33	E5	19	SLLRPLILSISTYA	47647	LRPLILSIS	49744
HPV33	E5	31	TYAWLLVLVLLWVWF	47648	WLLVLVLLL	49745
HPV33	E5	9	VLCFILFLCLSLLR	47649	FILFLCLSL	49746
HPV33	E5	34	WLLVLVLLWVFGVSG	47650	VLVLLWVWF	49747
HPV33	E5	32	YAWLLVLVLLWVWF	47651	LLVLVLLW	49748
HPV33	E5	56	YLLFLYLPMMCINFH	47652	FLYLPMMCIN	49749
HPV33	E6	69	CLRFLSKISEYRIYN	47653	FLSKISEYR	49750
HPV33	E6	47	DFAFADLTVVYREGN	47654	FADLTVVYR	49751
HPV33	E6	101	EILIRCIICQRP	47655	IRCIICQRP	49752
HPV33	E6	23	ETTHNIELQVCECK	47656	HNIELQCV	49753
HPV33	E6	128	PHNISGRWAGRCAC	47657	ISGRWAGRC	49754
HPV33	E6	60	GNPFGICKLCLRLS	47658	FGICKLCLR	49755
HPV33	E6	65	ICKLCLRLSKISEY	47659	LCLRLFSKI	49756
HPV33	E6	26	HNIELQVCECKKPL	47660	IELQVCECK	49757
HPV33	E6	104	IRCIICQRP	47661	ICQRP	49758
HPV33	E6	96	KKPLNEILIRCIICQ	47662	LNELIRCI	49759
HPV33	E6	37	KKPLQSEVYDFAFA	47663	LQSEVYDF	49760
HPV33	E6	99	LNELIRCIICQRP	47664	ILIRCIICQ	49761
HPV33	E6	31	LQVCECKKPLQSEV	47665	VECKKPLQR	49762
HPV33	E6	100	NEILIRCIICQRP	47666	LIRCIICQR	49763
HPV33	E6	28	NIELQVCECKKPLQR	47667	LQVCECKKP	49764
HPV33	E6	83	NYSVYGNLTLEQTVKK	47668	VYGNLTLEQT	49765
HPV33	E6	62	PFGICKLCLRLFSKI	47669	ICKLCLRL	49766
HPV33	E6	105	RCIICQRP	47670	ICQRP	49767
HPV33	E6	43	SEVYDFAFADLTVVY	47671	YDFAFADLT	49768
HPV33	E6	132	SGRWAGRCACWRSR	47672	WAGRCACW	49769
HPV33	E6	54	TVVYREGNPFICKL	47673	YREGNPFGI	49770
HPV33	E6	45	VYDFAFADLTVVYRE	47674	FAFADLTVV	49771
HPV33	E7	1	---MRGHKPTLKEYV	47675	MRGHKPTLK	49772
HPV33	E7	53	ADYYIVTCCHTCNTT	47676	YIVTCCHTC	49773
HPV33	E7	82	IQQLLMGTIVNIVCPT	47677	LLMGTVNIV	49774

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	E7	12	KEYVLDLYPEPTDLY	47678	VLDLYPEPT	49775
HPV33	E7	8	KPTLKEYVLDLYPEP	47679	LKEYVLDLY	49776
HPV33	E7	79	LRTIQQLMGTVNIV	47680	IQQLMGTV	49777
HPV33	E7	87	MGTVNIVCPTCAQ-	47681	VNIVCPTCA	49778
HPV33	E7	84	QLLMGTVNIVCPTCA	47682	MGTVNIVCP	49779
HPV33	E7	69	RLCVNSTASDLRTIQ	47683	VNSTASDLR	49780
HPV33	E7	52	TADYVIVTCCHTCNT	47684	YVIVTCCHT	49781
HPV33	E7	23	TDLYCYEQLSDDSE	47685	YCYEQLSDS	49782
HPV33	E7	89	TVNIVCPTCAQ---	47686	IVCPTCAQQ	49783
HPV33	E7	67	TVRLCVNSTASDLRT	47687	LCVNSTASD	49784
HPV33	E7	15	VLDLYPEPTDLYCYE	47688	LYPEPTDLY	49785
HPV33	E7	55	YVIVTCCHTCNTTVR	47689	VTCCHTCNT	49786
HPV33	L1	1	---MSVWRPSEATVY	47690	MSVWRPSEA	49787
HPV33	L1	387	AEVMYTIHAMNPDL	47691	MTYIHAMNP	49788
HPV33	L1	267	AGTLGEAVPDDLK	47692	LGEAVPDDL	49789
HPV33	L1	61	AKLLVPKVSGLQYR	47693	LLVPKVSGL	49790
HPV33	L1	12	ATVYLPVPVSKVVS	47694	YLPVPVPSK	49791
HPV33	L1	150	CLSMYKQTLCLLG	47695	MDYKQTQLC	49792
HPV33	L1	210	CMDFKTLQANKSDVP	47696	FKTLQANKS	49793
HPV33	L1	188	CPLELINTIEDGD	47697	LELINTIUE	49794
HPV33	L1	348	CTQVTSSTYKNEF	47698	VTSDSTYKN	49795
HPV33	L1	28	DEVVSRTSIYYAGS	47699	VSRTSIYVY	49796
HPV33	L1	373	DLQFVFLCKVTLTA	47700	FVFQLCKVT	49797
HPV33	L1	277	DLYKSGTTSIQS	47701	IKSGGTAS	49798
HPV33	L1	91	DTSFYNPDTQRLVWA	47702	FYNPTQRL	49799
HPV33	L1	222	DVPIDICGSTCKYPD	47703	IDICGSTCK	49800
HPV33	L1	403	DWQFGLTPPPSASLQ	47704	FGLTPPPSA	49801
HPV33	L1	11	EATVYLPVPVSKVV	47705	VYLPVPVPS	49802
HPV33	L1	450	EVDLKEKFSADLDQF	47706	LKEKFSADL	49803
HPV33	L1	250	FFFLRRQMFVRHFF	47707	LRREQMFVR	49804
HPV33	L1	208	FGCMDPKTLQANKSD	47708	MDPKTLQAN	49805
HPV33	L1	213	FKTLQANKSDVPDI	47709	LQANKSDVP	49806
HPV33	L1	170	GEHWGKGVACTNAAP	47710	WGKGVACTN	49807
HPV33	L1	174	GKGVACTNAAPANDC	47711	VACTNAAPA	49808
HPV33	L1	108	GLEIGRQPLGVGIS	47712	IGRQPLGV	49809
HPV33	L1	71	GLQYRFRVRLPDN	47713	YRVFRVRLP	49810
HPV33	L1	329	GNQVFVTVDDTRST	47714	VFTVVDTT	49811
HPV33	L1	114	GQPLGVGISGHLN	47715	LGVGISGHP	49812
HPV33	L1	118	GVGISGHLNKFDD	47716	ISGHLNFK	49813
HPV33	L1	50	HPYFSIKNPTNAKKL	47717	FSIKNPTNA	49814
HPV33	L1	393	IHAMNPDILEDWQFG	47718	MNPDILEDW	49815
HPV33	L1	366	IRHVEEYDLQVFQL	47719	VEEYDLQV	49816
HPV33	L1	62	KKLLVPKVSGLQYRV	47720	LVPKVSGLQ	49817
HPV33	L1	479	KPKLKRAAPTSTRTS	47721	LKRAAPTST	49818
HPV33	L1	220	KSDVPIDICGSTCKY	47722	VPIDICGST	49819
HPV33	L1	382	KVTLTAEVMTYIHAM	47723	LTAEVMTYI	49820
HPV33	L1	445	KYTFWEVDLKEKFS	47724	FWEVDLKEK	49821
HPV33	L1	160	LCLLGCKPPTGEHWG	47725	LGCKPPTGE	49822
HPV33	L1	401	LEDWQFGLTPPPSAS	47726	WQFGLTPPP	49823
HPV33	L1	443	LGKYTFWEVDLKEKF	47727	YTFWEVDLK	49824

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	L1	127	LNKFDDTETGNKYPG	47728	FDDTETGNK	49825
HPV33	L1	16	LPVPVSKVVSTDEY	47729	VPVSKVVST	49826
HPV33	L1	4	MSVWRPSEATVYLPP	47730	WRPSEATVY	49827
HPV33	L1	390	MTYIHAMNPDILEDW	47731	IHAMNPDIL	49828
HPV33	L1	311	NKPYWLQRAQGHNG	47732	YWLQRAQGH	49829
HPV33	L1	344	NMTLCTQVTSSTYK	47733	LCTQVTSDS	49830
HPV33	L1	195	NTIEDGDMVDITGFG	47734	IEDGDMVDIT	49831
HPV33	L1	275	PDDLVIKSGGTTASI	47735	LYIKSGGTT	49832
HPV33	L1	224	PIDICGSTCKYPDYL	47736	ICGSTCKYP	49833
HPV33	L1	190	PLELINTIIEDGDMV	47737	LINTIEDG	49834
HPV33	L1	84	PNKFGFPDTSFYNPD	47738	FGFPDTSFY	49835
HPV33	L1	18	PVPVSKVVSTDEYVS	47739	VSKVVSTDE	49836
HPV33	L1	417	QDITYRFVTSQAITCQ	47740	YRFVTSQAI	49837
HPV33	L1	405	QFGLTPPSASLQDT	47741	LTPPSASL	49838
HPV33	L1	463	QFPLGRKFLQAGLK	47742	LGRKFLQQA	49839
HPV33	L1	375	QFVFQLCVKVTLTAEV	47743	FQLCVKVTLT	49840
HPV33	L1	159	QLCLLGCKPPTGEHW	47744	LLGCKPPTG	49841
HPV33	L1	157	QTQLCLLGCKPPTGE	47745	LCLLGCKPP	49842
HPV33	L1	331	QVFVTVVDITRSTNM	47746	VTVDITRS	49843
HPV33	L1	73	QYRVFVRVRLDPNKF	47747	VFRVRLPDP	49844
HPV33	L1	261	RHFFNRAGTLGEAVP	47748	FNAGTLGE	49845
HPV33	L1	468	RKFLQAGLKAKPKL	47749	LLQAGLKAK	49846
HPV33	L1	101	RLVWACVGLGIRGQ	47750	WACVGLGIG	49847
HPV33	L1	458	SADLDQFPLGRKKFL	47751	LDQFPLGRK	49848
HPV33	L1	299	SGSMVTSESQLFNKP	47752	MVTSESQLF	49849
HPV33	L1	35	SIYYAGSSRLLA VG	47753	YYAGSSRL	49850
HPV33	L1	152	SMDYKQTLQCLLGCK	47754	YKQTLQCLL	49851
HPV33	L1	425	SQAITCQKTPPKKEK	47755	ITCQKTVPP	49852
HPV33	L1	43	SRLLA VGHYPYSIKN	47756	LAVGHPYFS	49853
HPV33	L1	291	SSAFFPTPSGSMVTS	47757	FFPTPSGSM	49854
HPV33	L1	27	TDEYVSRSTSIYYAG	47758	YVSRSTSIY	49855
HPV33	L1	99	TQRLVWACVGLGIR	47759	LVWACVGLE	49856
HPV33	L1	34	TSIYYAGSSRLLA V	47760	YYAGSSRL	49857
HPV33	L1	13	TVYLPVPVSKVVST	47761	LPVPVSKV	49858
HPV33	L1	419	TYRFVTSQAITCQKT	47762	FVTSQAITC	49859
HPV33	L1	369	VEEYDLQFVFLCKV	47763	YDLQFVFL	49860
HPV33	L1	377	VFQCKVTLTAEVMT	47764	LCKVTLTAE	49861
HPV33	L1	76	VFRVRLDPNKFQFP	47765	VRLPDPNKF	49862
HPV33	L1	334	VTVDITRSTNMTLC	47766	VDITRSTNM	49863
HPV33	L1	234	YPDYLMTSEPYGDS	47767	YLMTSEPY	49864
HPV33	L1	420	YRFVTSQAITCQKT	47768	VTSQAITCQ	49865
HPV33	L1	74	YRVFVRLDPNKF	47769	FRVRLDPN	49866
HPV33	L1	1	---MRHKRSTRKRA	47770	MRHKRSTRR	49867
HPV33	L2	370	ADDVDNVHTPMQHSY	47771	VDNVHTPMQ	49868
HPV33	L2	44	ADQILKYGSLGVFFG	47772	ILKYGSLGV	49869
HPV33	L2	85	AIPQIRPPVTVDT	47773	LQIRPPVT	49870
HPV33	L2	281	DPDFLDIHALHRPAI	47774	FLDIALHR	49871
HPV33	L2	45	DQILKYGSLGVFFGG	47775	LKYGSLGVF	49872
HPV33	L2	202	DTFVVSSTDSSNVTS	47776	VVSTDSSNV	49873
HPV33	L2	266	EDTLQFQHSDISAP	47777	LQFQHSDIS	49874

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	L2	168	EPSVLHPPAPAEASG	47778	VLHPPAPAE	49875
HPV33	L2	152	ESSIQTISTHLNPTF	47779	IQTISTHLN	49876
HPV33	L2	113	ETSFIEAGAPAPAP	47780	FIEAGAPAP	49877
HPV33	L2	433	FDIVVDGADFVLHP	47781	IVVDGADFV	49878
HPV33	L2	260	FESFDPEDTLQFQHS	47782	FDPEDTLQF	49879
HPV33	L2	430	FFPFDIVVDGADFV	47783	FDIVVDGA	49880
HPV33	L2	304	FSRVGQKATLKTRSG	47784	VGQKATLKT	49881
HPV33	L2	424	FVPSPFFPFDITIV	47785	ISPFPPFDIT	49882
HPV33	L2	440	GADFVLHPSYFILRR	47786	FVLHPSYFI	49883
HPV33	L2	440	GIHIFSSPTVSTQSY	47787	IFSSPTVST	49884
HPV33	L2	182	GSTIADQILKYGSLG	47788	IADQILKYG	49885
HPV33	L2	40	GVFFGGLGIGTSGS	47789	FGGLGIGTG	49886
HPV33	L2	54	HFFSSPTVSTQSYE	47790	FSSPTVSTQ	49887
HPV33	L2	183	HKLTIDNPAPESFD	47791	ITYDNPAFE	49888
HPV33	L2	250	HTPMQHSYSTFAATR	47792	MQHSYSTFA	49889
HPV33	L2	377	IHYQQDLSPIVPLDH	47793	YQDLSPIVP	49890
HPV33	L2	325	IIALHRPAITSRRHT	47794	LHRPAITSR	49891
HPV33	L2	287	ILKYGSLGVFFGGLG	47795	YGSLGVFFG	49892
HPV33	L2	47	IPKVEGSTIADQILK	47796	VEGSTIADQ	49893
HPV33	L2	35	ISPFPPFDITVVDGA	47797	FPFDITIV	49894
HPV33	L2	427	IVPLDHTVPNEQVEL	47798	LDHTVPNEQ	49895
HPV33	L2	334	IVSLIBETSFIEAGA	47799	LIEETSFIE	49896
HPV33	L2	107	LDIHALHRPAITSRR	47800	IALHRPAIT	49897
HPV33	L2	285	LQPIRPVTVDTVGP	47801	IRPPVTVDT	49898
HPV33	L2	88	LQPLDHTSTSSYSIN	47802	LHDSTSSY	49899
HPV33	L2	348	LYDVYADDVDNVHTP	47803	VYADDVDNV	49900
HPV33	L2	365	NDGLYDVYADDVDNV	47804	LYDVYADDV	49901
HPV33	L2	362	NEOYELQPLDHTSTS	47805	YELQPLDHT	49902
HPV33	L2	343	NIPMDTFVVSSTSSN	47806	MDTFVVSST	49903
HPV33	L2	198	NPAFESFDPEDTLQF	47807	FESFDPEDT	49904
HPV33	L2	257	NPTFTEPSVLHPPAP	47808	FTEPSVLHP	49905
HPV33	L2	163	NTGFDTPVMSGPDIP	47809	FDTPVMSGP	49906
HPV33	L2	400	PAINVSSEGSIQ	47810	INVSSVGES	49907
HPV33	L2	142	PDFLDIHALHRPAIT	47811	LDIHALHRP	49908
HPV33	L2	282	PSGFEDVTTTSADTTPA	47812	FDVTTTSADT	49909
HPV33	L2	129	PSPLPFTSSPFVPIIS	47813	LFTSSPFV	49910
HPV33	L2	414	PSVLHPPAPAEASGH	47814	LHPPAPAEA	49911
HPV33	L2	169	PVTVDITVGPLDSSIV	47815	VDITVGPLDS	49912
HPV33	L2	94	QHSYSTFATRTSNV	47816	YSTFATRT	49913
HPV33	L2	381	RFPYFFTDVVRVAA--	47817	YFFTDVVRVA	49914
HPV33	L2	458	RHTVRFSSRVGQKATL	47818	VRFSRVGQK	49915
HPV33	L2	299	RIHYQQDLSPIVPLD	47819	YYQDLSPIV	49916
HPV33	L2	324	RKREFYFFTDVVRVAA	47820	FPYFFTDVR	49917
HPV33	L2	456	RLGLYSRNTQQVKVV	47821	LYSRNTQQV	49918
HPV33	L2	227	RPIVTVDTVGPLDSS	47822	VTVDITVGPL	49919
HPV33	L2	92	RTGYVPIGTDPTAA	47823	VYPIGTDPP	49920
HPV33	L2	71	SGHFFSSPTVSTQS	47824	FISSPTVS	49921
HPV33	L2	181	SLGVFFGGLGIGTGS	47825	VFFGGLGIG	49922
HPV33	L2	52	SPFFPFDITVVDGAD	47826	FPFDITIVVD	49923
HPV33	L2	428	SPVPLDHTVPNEQY	47827	VPLDHTVPN	49924
HPV33	L2	332				

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	L2	415	SPLFTSSPFVPISP	47828	FPTSSPFVP	49925
HPV33	L2	222	SRPVARGLYSRNTQ	47829	VARGLYSR	49926
HPV33	L2	210	SSNVTSSPIPGSRP	47830	VTSSPIPG	49927
HPV33	L2	421	SSPFVISPFFPFDI	47831	FVISPFFP	49928
HPV33	L2	159	STHLNPTFTEPSVLHI	47832	LNPTFTEPS	49929
HPV33	L2	216	STPIGSRPVARLGL	47833	IPGSRPVAR	49930
HPV33	L2	83	TAAIPLQPIRPVTV	47834	IPLQPIRP	49931
HPV33	L2	203	TFVVSTDSNNVTST	47835	VSTDSNVT	49932
HPV33	L2	268	TLQFQHSIDISPAPDP	47836	FQHSIDIPA	49933
HPV33	L2	141	TPAIINVSSVGESSI	47837	IINVSSVGE	49934
HPV33	L2	405	TPVMSGPDIPSPLP	47838	MSGPDIPSP	49935
HPV33	L2	18	TQLYQTCKATGTCPP	47839	YQTCKATGT	49936
HPV33	L2	235	TQQVKVVDPAFLTSP	47840	VKVVDPAFL	49937
HPV33	L2	193	TQSYENIPMDTFVVS	47841	YENIPMDTF	49938
HPV33	L2	114	TSFIEAGAPAPSIPT	47842	IEAGAPAPS	49939
HPV33	L2	97	VDTVGPLDSSIVSLI	47843	VGPLDSSIV	49940
HPV33	L2	100	VGPLDSSIVSLIET	47844	LDSSIVSLI	49941
HPV33	L2	238	VKVVDPAFLTSPHKL	47845	VDPAFLTSP	49942
HPV33	L2	147	VSSYGESSIQTISTH	47846	VGESSIQTI	49943
HPV33	L2	328	YQDLSPIVPLDHTVP	47847	LSPIVPLDH	49944
HPV33	L2	384	YSTFATRTTSNVSIIP	47848	FATRTTSNV	49945
HPV33	L2	74	YVPIGTDPPTAAIPL	47849	IGTDPPTAA	49946
HPV45	E1	385	AAAFKSNCAQKYLK	47850	FLKSNCAQK	49947
HPV45	E1	178	AENVDPHCSTELKE	47851	VDPHCSITE	49948
HPV45	E1	395	AKYLDKCAVMCRHYK	47852	LKDCAVMCR	49949
HPV45	E1	314	ALYWYRTGISNISEV	47853	WYRTGISNI	49950
HPV45	E1	254	ATLYAHIQCLDKCWG	47854	YAHIQCLDC	49951
HPV45	E1	300	CMLIEPPKLRSSVAA	47855	IEPPKLRSS	49952
HPV45	E1	17	CNGWFFVETIVEKKT	47856	WFFVETIVE	49953
HPV45	E1	142	CSEVEAAETQTVNT	47857	VEAAETQVT	49954
HPV45	E1	524	CWTFYFDNMYMRNALDG	47858	YFDNMYMRNA	49955
HPV45	E1	264	DKWGVLLIALLRYK	47859	WGVLLIALL	49956
HPV45	E1	370	DMAFOYAQLADCN	47860	FQYAQLADC	49957
HPV45	E1	569	DNKWPYLESRVTVFT	47861	WPYLESRV	49958
HPV45	E1	137	DSGYGCSEVEAAETQ	47862	YGCSEVEAA	49959
HPV45	E1	348	DSNFDLSDMVQWAFD	47863	FDLSDMVQW	49960
HPV45	E1	231	DWVMAIFGVNPTVAE	47864	MAIFGVNPT	49961
HPV45	E1	610	ERTWSRLDLHEDDED	47865	WSRLDLHED	49962
HPV45	E1	368	ESDMAFOYAQLADCN	47866	MAFOYAQLA	49963
HPV45	E1	298	ETCMLIEPPKLRSSV	47867	MLIEPPKLR	49964
HPV45	E1	528	FDNYMRNALDGNPIS	47868	YMRNALDGN	49965
HPV45	E1	486	FIHFLQGAISFVNS	47869	FLQGAISF	49966
HPV45	E1	635	FKCVTGQNTPL---	47870	VTGQNTPL	49967
HPV45	E1	247	FKTLIKPATLYAHIQ	47871	LKPATLYA	49968
HPV45	E1	492	GAISFVNSNSHFWL	47872	ISFVNSNSH	49969
HPV45	E1	161	GGSVHSTQSSGGDSS	47873	VHSTQSSGG	49970
HPV45	E1	629	GIPFGTFKCVTGQNT	47874	FGTFKCVTG	49971
HPV45	E1	19	GWFFVETIVEKKTGD	47875	FVETIVEKK	49972
HPV45	E1	547	HKPLLQKCPPIILT	47876	LLQKCPPI	49973
HPV45	E1	236	IFGVNPTVAEGFKTL	47877	VNPTVAEGF	49974

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	E1	487	IHFLOGAISFVNSN	47878	LQGAISFV	49975
HPV45	E1	494	ISFVNSNSHFWELEP	47879	FVNSNSHFV	49976
HPV45	E1	271	ILALLRYCKGNRLT	47880	LLRYCKGN	49977
HPV45	E1	469	ILLYGPANTGKSYFG	47881	YGPANTGKS	49978
HPV45	E1	325	ISEVSGDTPEWQRL	47882	VSGDTPEWI	49979
HPV45	E1	210	IYGLSFTDLVRNPKS	47883	LSFTDLVRN	49980
HPV45	E1	606	KCFERTWSKLDLHE	47884	FERTWSRLD	49981
HPV45	E1	208	KDIYGLSFTDLVRNF	47885	YGLSFTDLV	49982
HPV45	E1	466	KNCILLYGPANTGKS	47886	ILLYGPANT	49983
HPV45	E1	548	KPLLQLKCPILLTS	47887	LQLKCPIL	49984
HPV45	E1	479	KSYFGMSFIHQGA	47888	FGMSFIHL	49985
HPV45	E1	248	KTLKPATLYAHQIC	47889	IKPATLYAH	49986
HPV45	E1	513	KVAMLDLDAHTCWTY	47890	MLDDATHTC	49987
HPV45	E1	266	KWGVILALLRYCKG	47891	VLILALLRY	49988
HPV45	E1	571	KWPYLESRTVTFPP	47892	YLESRTVTF	49989
HPV45	E1	506	LEPLADTKVAMLDLDA	47893	LADTKVAML	49990
HPV45	E1	85	LHLKRFAGGSKEN	47894	LKRFAAGS	49991
HPV45	E1	456	LKEFLKGTGPKNCIL	47895	FLKGTGPKN	49992
HPV45	E1	293	LLHVPETCMLIEPPK	47896	VPETCMLIE	49993
HPV45	E1	550	LLQLKCPILLTSNI	47897	LKCPILLT	49994
HPV45	E1	315	LYWYRTGISNISEVS	47898	YRTGISNIS	49995
HPV45	E1	234	MAIFGVNPTVAEGFK	47899	FGVNPTVAE	49996
HPV45	E1	418	MSQWIKYRCSKIDEG	47900	WKYRCSKI	49997
HPV45	E1	50	MVDFTDLSICEQA	47901	FIDTQLSIC	49998
HPV45	E1	467	NCILLYGPANTGKSY	47902	LLYGPANTG	49999
HPV45	E1	18	NGWFFVETIVEKKTG	47903	FFVETIVEK	50000
HPV45	E1	501	NSHFWLEPLADTKVA	47904	FWLEPLADT	50001
HPV45	E1	99	NSPLGEQLSVDITLS	47905	LGEQLSVDIT	50002
HPV45	E1	333	PEWQRLTIQHID	47906	IQRLTIQIH	50003
HPV45	E1	556	PPILLTSNIDPAKDN	47907	LLTSNIDPA	50004
HPV45	E1	305	PKLRSSVAALYWYR	47908	LRSSVAALY	50005
HPV45	E1	394	QAKYLLKDCAVMCRIY	47909	YLLKDCAVMC	50006
HPV45	E1	70	QALFHAQEVQNDQV	47910	FHAQEVQND	50007
HPV45	E1	105	QLSVDITDLSRLQEI	47911	VDITDLSRKL	50008
HPV45	E1	358	QWAFDNDLTDES DMA	47912	FDNDLTDES	50009
HPV45	E1	338	RLTIQHIGDSDNF	47913	IQHIGDSD	50010
HPV45	E1	283	RLTVAKGLSTLLHVP	47914	VAKGLSTLL	50011
HPV45	E1	533	RNALDGNPISDRKH	47915	LDGNPISID	50012
HPV45	E1	130	RRLFTISDSGYGCSE	47916	FTISDSGYG	50013
HPV45	E1	48	SDMVDFDITQLSICE	47917	VDFDITQLS	50014
HPV45	E1	502	SHFWLEPLADTKVAM	47918	WLEPLADTK	50015
HPV45	E1	113	SPRLQEISLNSGHKK	47919	LQEISLNSG	50016
HPV45	E1	419	SQWIKYRCSKIDEGG	47920	IKYRCSKID	50017
HPV45	E1	291	STLLHVPETCMLIEP	47921	LHVPETCML	50018
HPV45	E1	216	TDLVRNFKSKTTCT	47922	VRNFKSKDT	50019
HPV45	E1	332	TPEWQRLTIQHIGI	47923	WQRLTIQIH	50020
HPV45	E1	312	VAALYWYRTGISNIS	47924	LYWYRTGIS	50021
HPV45	E1	51	VDFDITQLSICEQAE	47925	IDTQLSICE	50022
HPV45	E1	447	VEFISFLRALKEFLK	47926	ISFLRALKE	50023
HPV45	E1	23	VETIVEKKKTGDVID	47927	IVEKKKTGDV	50024

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	E1	581	VFTFPHAFPFDKNGN	47928	FPHAFPFDK	50025
HPV45	E1	233	VMAIFGVNPTVAEGF	47929	IFGVNPTVA	50026
HPV45	E1	439	VQFLRYQGVFISFL	47930	LRYQGVFEI	50027
HPV45	E1	219	VRNFKSDKTTCTDWV	47931	FKSDKTTCT	50028
HPV45	E1	579	VTVFTFPHAFPFDKN	47932	FTFPHAFPF	50029
HPV45	E1	267	WGVLLALLRYKCGK	47933	LILALLRYK	50030
HPV45	E1	421	WIKYRCSRKIDEGDW	47934	YRCSRKIDEG	50031
HPV45	E1	572	WPYLESRVTVTFPH	47935	LESRVTVFT	50032
HPV45	E1	257	YAHIQCLDCKWGVLI	47936	IQCLDCKWG	50033
HPV45	E1	375	YAQLADCNSNA AFL	47937	LADCNSNA	50034
HPV45	E2	1	--MKMQTPKESLE	47938	MKMQTPKES	50035
HPV45	E2	159	AACVSYWGVVYIKDG	47939	VSYWGVVYI	50036
HPV45	E2	317	ADHYSEISSTWHWTG	47940	YSEISSTWH	50037
HPV45	E2	107	CEELWNTEPSQCFKK	47941	LWNTEPSQC	50038
HPV45	E2	185	CEKYNSNTWEVQYG	47942	YGNSNTWEV	50039
HPV45	E2	137	CMNVVWVDSIYYITE	47943	YVVWDSIYY	50040
HPV45	E2	214	DDTVSATQIVRQLQH	47944	VSATQIVRQ	50041
HPV45	E2	144	DSIYYITETGIWDKT	47945	YYITETGIW	50042
HPV45	E2	108	EELWNTEPSQCFKKG	47946	WNTSPQCF	50043
HPV45	E2	83	ELQMALKGLAOSKYN	47947	MALKGLAOS	50044
HPV45	E2	151	ETGIWDKTAACVSYW	47948	IWDKTAACV	50045
HPV45	E2	195	EVQYGGNVDCNDSM	47949	YGGNVDCN	50046
HPV45	E2	200	GNVIDCNDMSCTSD	47950	IDCNDMSCS	50047
HPV45	E2	79	HKAIELQMALKG LAQ	47951	IELQMALKG	50048
HPV45	E2	272	HNPLCSSTSNKRR	47952	LLCSSTSN	50049
HPV45	E2	65	HQVVPINISKSKAH	47953	VPPINISKS	50050
HPV45	E2	39	ISYWQLIRLENALF	47954	WQLIRLENA	50051
HPV45	E2	60	ITKLNHQVVPINIS	47955	LNHQVVPPI	50052
HPV45	E2	146	IYYITETGIWDKTA	47956	ITETGIWDK	50053
HPV45	E2	10	KESLSERLSALQDKI	47957	LSERLSALQ	50054
HPV45	E2	243	KPHIQTPATKRPRQC	47958	IOTPATKR	50055
HPV45	E2	353	LDVVTIPNSVQISVG	47959	VTIPNSVQI	50056
HPV45	E2	44	LIRLENAILFTAREH	47960	LENAILFTA	50057
HPV45	E2	313	LRYADHYSEISSTW	47961	YADHYSEIS	50058
HPV45	E2	17	LSALQDKILDHYEND	47962	LQDKILDHY	50059
HPV45	E2	138	MNYVVWDSIYYITET	47963	VVWDSIYYI	50060
HPV45	E2	98	NEEWTLQDTCEELWN	47964	WTLQDTCEE	50061
HPV45	E2	273	NPLCSSTSNKRRK	47965	LCSSTSNK	50062
HPV45	E2	36	NSQISYWQLIRLENA	47966	ISYWQLIRL	50063
HPV45	E2	350	NTFLDVVTIPNSVQI	47967	LDVVTIPNS	50064
HPV45	E2	268	NTHVHNPLLCSTSN	47968	VHNPLLCSS	50065
HPV45	E2	70	PINISKSKAHKAI	47969	ISKSKAHKA	50066
HPV45	E2	349	RNTFLDVVTIPNSVQ	47970	FLDVVTIPN	50067
HPV45	E2	285	RRKVCSGNTTPIHL	47971	VCSGNTTPI	50068
HPV45	E2	32	SKDINSQISYWQLIR	47972	INSQISYWQ	50069
HPV45	E2	324	SSTWHWTGCNKNTGI	47973	WHWTGCNKN	50070
HPV45	E2	236	TASVGTGPKPHIQIPA	47974	VGTPKPHIQ	50071
HPV45	E2	152	TGIWDKTAACVSYWG	47975	WDKTAACVS	50072
HPV45	E2	175	TTYVYQFKSECEKYG	47976	YVQFKSECE	50073
HPV45	E2	68	VPPINISKSKAHKAI	47977	INISKSKAH	50074

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	E2	223	VRQLQHASTSTPKTA	47978	LQHASTSTP	50075
HPV45	E2	162	VSYWGVYIKDGDIT	47979	WGVYIKDGD	50076
HPV45	E2	167	VYIKDGDITVYVQF	47980	IKDGDITTY	50077
HPV45	E2	42	WQIRLENAILFTAR	47981	IRLENAILF	50078
HPV45	E6	34	ACVYCKATLTERTEV	47982	YCKATLERT	50079
HPV45	E6	54	DLFIVYRDCIAYAAC	47983	IVYRDCIAY	50080
HPV45	E6	30	DVSIACVYCKATLER	47984	IACVYCKAT	50081
HPV45	E6	80	ELRYYSNSVYGETLE	47985	YYSNSVYGE	50082
HPV45	E6	56	FIVYRDCIAYAACHK	47986	YRDCIAYAA	50083
HPV45	E6	33	IACVYCKATLTERTEV	47987	YCKATLER	50084
HPV45	E6	106	IRCLRCQKPLNPAEK	47988	LRCQKPLNP	50085
HPV45	E6	39	KATLTERTEVYQAFK	47989	LERTEVYQF	50086
HPV45	E6	93	LEKITNTELYNLIR	47990	ITNTELYNL	50087
HPV45	E6	55	LFIVYRDCIAYAAACH	47991	VYRDCIAYA	50088
HPV45	E6	28	LQDVSIACVYCKATL	47992	VSIACVYCK	50089
HPV45	E6	101	LYNLLIRCLRCQKPL	47993	LLIRCLRCQ	50090
HPV45	E6	103	NLLIRCLRCQKPLNP	47994	IRCLRCQKP	50091
HPV45	E6	98	NTELYNLLIRCLRCQ	47995	LYNLLIRCL	50092
HPV45	E6	25	NTSLQDVSIACVYCK	47996	LQDVSIACV	50093
HPV45	E6	14	PYKLPDLCTELNTSL	47997	LPDLCTELN	50094
HPV45	E6	49	QFAFKDLFIVYRDCI	47998	FKDLFIVYR	50095
HPV45	E6	12	QRPYKLPDLCTELNT	47999	YKLPDLCTE	50096
HPV45	E6	60	RDCIAYAACHKCIDF	48000	IAYAACHKC	50097
HPV45	E6	85	SNVYGETLEKITNT	48001	YGETLEKI	50098
HPV45	E6	47	VYQFAFKDLFIVYRD	48002	FAFKDLFIV	50099
HPV45	E7	1	---MHGPRATLQEI	48003	MHGPRATLQ	50100
HPV45	E7	45	ADGVSHAQLPARRAE	48004	VSHAQLPAR	50101
HPV45	E7	50	HAQLPARRAEQRIKH	48005	LPARRAEPQ	50102
HPV45	E7	90	LQQLFLSTLSFVCPW	48006	LFLSTLSFV	50103
HPV45	E7	87	LRTLQQLFLSTLSFV	48007	LQQLFLSTL	50104
HPV45	E7	98	LSFVCPWCATNQ---	48008	VCPWCATNQ	50105
HPV45	E7	95	LSTLSFVCPWCATNQ	48009	LSFVCPWCA	50106
HPV45	E7	12	QEIVLHLEPQNELDP	48010	VLHLEPQNE	50107
HPV45	E7	21	QNELDPVDLLCYEQL	48011	LDPVDLLCY	50108
HPV45	E7	91	QQLFLSTLSFVCPWC	48012	FLSTLSFVC	50109
HPV45	E7	8	RATLQEIVLHLEPQN	48013	LQEIVLHLE	50110
HPV45	E7	62	RHKILCVCKCKDGRI	48014	ILCVCKCKD	50111
HPV45	E7	75	RIELTVESADDLRT	48015	LTVESADD	50112
HPV45	E7	97	TLSFVCPWCATNQ--	48016	FVCPWCATN	50113
HPV45	E7	27	VDLLCYEQLSESEE	48017	LCYEQLSES	50114
HPV45	L1	1	---MAHNIYGHGII	48018	MAHNIYGH	50115
HPV45	L1	418	AEVMSYIHSNMSSIL	48019	MSYIHSMNS	50116
HPV45	L1	294	AGVMGDTVPTDLYIK	48020	MGDTVPTDL	50117
HPV45	L1	165	ATAVITQDVRDNVSV	48021	VITQDVRDN	50118
HPV45	L1	97	AYQYRVRFRVALPDPN	48022	YRVRFRVALP	50119
HPV45	L1	215	CPPLELKNTHIEDGD	48023	LELKNTHIE	50120
HPV45	L1	54	DDYVSRTSIFYIAGS	48024	VSRTSIFYH	50121
HPV45	L1	404	DLOFIFQLCTITLTA	48025	FIFQLCTIT	50122
HPV45	L1	304	DLYIKGTSANMRETP	48026	IKGTSANMR	50123
HPV45	L1	117	DSTIYNPETQRLVWA	48027	LYNPETQRL	50124

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	L1	37	DSTVYLPPPSVARVV	48028	VYLPSPSA	50125
HPV45	L1	249	EVPLDICQICKYPD	48029	LDICQICK	50126
HPV45	L1	277	FFCLRREQLFARHFW	48030	LRREQLFAR	50127
HPV45	L1	27	FLQMALWRPSDSTVY	48031	MALWRPSDS	50128
HPV45	L1	24	FIPLQMALWRPSDS	48032	FLQMALWRP	50129
HPV45	L1	240	FSTLQDTKCEVPLDI	48033	LQDTKCEVP	50130
HPV45	L1	196	GEHWAKGTLCKPAQL	48034	WAKGTLCKP	50131
HPV45	L1	13	GIHFLKNVNVFPI	48035	IFLKNVNVF	50132
HPV45	L1	134	GMEIRGQQLGIGLS	48036	IGRQQLGI	50133
HPV45	L1	75	GNPYFRVVPSPGAGNK	48037	YFRVVPSCA	50134
HPV45	L1	140	GQPLGIGLSGHPFYN	48038	LGIGLSGHP	50135
HPV45	L1	319	GSCVYSPSPSGSITT	48039	VYSPSPSGS	50136
HPV45	L1	6	HNIIYGHGHIIFLN	48040	IYGHGHIIF	50137
HPV45	L1	358	HNQLFVTVVDITRST	48041	LFVTVVDIT	50138
HPV45	L1	408	IFQLCTITLTAEVMS	48042	LCTITLTAE	50139
HPV45	L1	424	IHSMNSSILENWNFG	48043	MNSSILENW	50140
HPV45	L1	15	IIFLKNVNVFPIELQ	48044	LKNVNVFPI	50141
HPV45	L1	247	KCEVPLDICQICKY	48045	VPLDICQSI	50142
HPV45	L1	112	KGLPDSITYNPETQ	48046	LPDSITYNP	50143
HPV45	L1	476	KLKFWTVDLKEKFS	48047	FWTVDLKEK	50144
HPV45	L1	89	KQAVPKVSAYQYRVF	48048	VPKVSAYQY	50145
HPV45	L1	186	LCILGCVPAIGEHW	48049	LGCVPAIGE	50146
HPV45	L1	432	LENWNFGVPPPTTS	48050	WNFGVPPPT	50147
HPV45	L1	18	LKNVNVFPIELQMAL	48051	VNVFPIELQ	50148
HPV45	L1	405	LQIFQLCTITLTAE	48052	IFQLCTITL	50149
HPV45	L1	30	MALWRPSDSTVYLP	48053	WRPSDSTVY	50150
HPV45	L1	421	MSYIHSNMSSILENW	48054	IHSNMSSIL	50151
HPV45	L1	436	NFGVPPPTTSLVDI	48055	VPPPTTSL	50152
HPV45	L1	7	NIYGHGHIIFLN	48056	YGHGHIIF	50153
HPV45	L1	340	NKPYWLHKAQGHNNQ	48057	YWLHKAQGH	50154
HPV45	L1	76	NPYFRVVPSPGAGNKQ	48058	FRVVPSPGAG	50155
HPV45	L1	222	NTIEDGDMVDITGYG	48059	IEDGDMVDI	50156
HPV45	L1	20	NVNVFPIELQMALWR	48060	VFPIELQMA	50157
HPV45	L1	176	NVSDYKQTLCLIG	48061	VDYKQTLCL	50158
HPV45	L1	434	NWNFGVPPPTTSLV	48062	FGVPPPTT	50159
HPV45	L1	207	PAQLQPGDCPPELK	48063	LQPGDCPPL	50160
HPV45	L1	251	PLDICQICKYPDYL	48064	ICQICKYP	50161
HPV45	L1	217	PLELKNTHIEDGMV	48065	LKNTHIEDG	50162
HPV45	L1	110	PNKFGLPDSITYNPE	48066	FGLPDSITY	50163
HPV45	L1	302	PTDLYIKGTSANMRE	48067	LYIKGTSAN	50164
HPV45	L1	504	QAGLRRRPTIGPRKR	48068	LRRRPTIGP	50165
HPV45	L1	406	QFIFQLCTITLTAEV	48069	FQLCTITLT	50166
HPV45	L1	185	QICILGCVPAIGEHW	48070	ILGCVPAIG	50167
HPV45	L1	360	QLFVTVVDITRSTNL	48071	VTVVDITRS	50168
HPV45	L1	183	QTQLCILGCVPAIGE	48072	LCILGCVPA	50169
HPV45	L1	494	QYPLGRKFLVQAGLR	48073	LGRKFLVQA	50170
HPV45	L1	99	QYRVRFRVALPDNKF	48074	VFRVALPDP	50171
HPV45	L1	293	RAGVMGDTVPTDLYI	48075	VMGDTVPTD	50172
HPV45	L1	288	RHFVNRAGVMGDTVP	48076	WNRAGVMGD	50173
HPV45	L1	499	RKFLVQAGLRRRPTI	48077	LVQAGLRRR	50174

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	L1	127	RLVWACVGMIGRGQ	48078	WACVGMIG	50175
HPV45	L1	320	SCVYSPSPSGSITTS	48079	YSPSPSGSI	50176
HPV45	L1	328	SGSITTSDSOLFNP	48080	ITTSDSOLF	50177
HPV45	L1	61	SIFYHAGSSRLLTVG	48081	YHAGSSRL	50178
HPV45	L1	397	SRHVEEYDLQIFQL	48082	VEEYDLQFI	50179
HPV45	L1	69	SRLLTVGNPYFRVP	48083	LTVGNPYFR	50180
HPV45	L1	489	SSDLQDQYPLGRKFLV	48084	LDQYPLGRK	50181
HPV45	L1	371	STNLTLCASTQNVP	48085	LTLCASTQN	50182
HPV45	L1	38	STVYLPSPSVARVN	48086	YLPSPSVAR	50183
HPV45	L1	178	SVDYKQTLQILGCY	48087	YKQTLQIL	50184
HPV45	L1	53	TDDYVSRITSIFYHAG	48088	YVSRITSIFY	50185
HPV45	L1	303	TDLYIKGTSANMRET	48089	YIKGTSANM	50186
HPV45	L1	413	TITLTAEVMSYIISM	48090	LTAEVMSYI	50187
HPV45	L1	170	TQDVRDNVSDYKQKT	48091	VRDNVSDY	50188
HPV45	L1	125	TQRLVWACVGMIEGR	48092	LVWACVGMIE	50189
HPV45	L1	60	TSIFYHAGSSRLTV	48093	FYHAGSSRL	50190
HPV45	L1	481	TVDLKEKFSDDLQY	48094	LKEKFSDDL	50191
HPV45	L1	39	TVYLPSPSVARVNT	48095	LPPSPSVARV	50192
HPV45	L1	450	TYRFVQSVAVTCQKD	48096	FVQSVAVTC	50193
HPV45	L1	448	VDTYRFVQSVAVTCQ	48097	YRFVQSVAV	50194
HPV45	L1	400	VEEYDLQIFQLCTI	48098	YDLQIFQL	50195
HPV45	L1	23	VFPFLQMALWRPSD	48099	IFLQMALWR	50196
HPV45	L1	102	VFRVALDPNKFGLP	48100	VALDPNKF	50197
HPV45	L1	192	VPAIGEHWAKGLCK	48101	IGEHWAKGT	50198
HPV45	L1	363	VTVDITRSTNLTLC	48102	VDITRSTNL	50199
HPV45	L1	474	YDKLFKFWTVDLKEKF	48103	LKFWTVDLK	50200
HPV45	L1	78	YFRVPSGAGNKQAV	48104	VVPSGAGNK	50201
HPV45	L1	235	YGAMDFSTLQDTKCE	48105	MDFTLQDT	50202
HPV45	L1	153	YNKLDDESAHAATA	48106	LDDTESAHA	50203
HPV45	L1	261	YPDYLOMSADPYGDS	48107	YLQMSADPY	50204
HPV45	L1	451	YRFVQSVAVTCQKDT	48108	VQSVAVTCQ	50205
HPV45	L1	100	YRFRVALDPNKF	48109	FRVALDPN	50206
HPV45	L2	1	---MVSHRAARRKRA	48110	MVSHRAARR	50207
HPV45	L2	2	--MVSHRAARRKRAS	48111	VSHRAARRK	50208
HPV45	L2	44	ADKILQWSSLGIFLG	48112	ILQWSSLGI	50209
HPV45	L2	385	ASSYSNVTVPILTSAW	48113	YSNVTVPIL	50210
HPV45	L2	408	DILPSTHTPMWPTS	48114	LPSHTPMW/P	50211
HPV45	L2	45	DKILQWSSLGIFLGG	48115	LQWSSLGIF	50212
HPV45	L2	346	DSDLFDVYADFPFA	48116	LFDVYADFP	50213
HPV45	L2	112	DSSVVASGAPVPTFT	48117	VVASGAPVP	50214
HPV45	L2	263	DTLSFEPTSNVPDS	48118	LSFEPTSNV	50215
HPV45	L2	334	EIELQPLISATNDS	48119	LQPLISATN	50216
HPV45	L2	197	EIPLQTFASSGSTE	48120	LQTFASSGS	50217
HPV45	L2	350	FDVYADFPFPASTTP	48121	YADFPFPAS	50218
HPV45	L2	299	FSRLGQRATMFTRS	48122	LQQRATMFT	50219
HPV45	L2	130	GFEITSSGTTTPAVL	48123	ITSSGTTTP	50220
HPV45	L2	54	GIFLGLGIGTSGS	48124	LGGLGIGTG	50221
HPV45	L2	181	GNIFVGTPTSGSHCY	48125	FVGTPTSGS	50222
HPV45	L2	40	GITLADKILQWSSLG	48126	LADKILQWS	50223
HPV45	L2	414	HTPMWPTSPFNAST	48127	MWPSTPTN	50224

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	L2	96	IEPVGPTDPSIVTLV	48128	VGTPDPSIV	50225
HPV45	L2	282	IIRLHRPALSSRRGT	48129	LHRPALSSR	50226
HPV45	L2	47	ILQWSSSLGIFLGLG	48130	WSSLGIFLG	50227
HPV45	L2	35	INKVEGTTLADKILQ	48131	VEGTTLADK	50228
HPV45	L2	106	IVTLVEDSSVVASGA	48132	LVEDSSVVA	50229
HPV45	L2	375	KYSLTMPSTAASSYS	48133	LTMPSTAAS	50230
HPV45	L2	349	LFVYADFPPASTT	48134	VYADFPPA	50231
HPV45	L2	200	LQTFASSGSGTEPIS	48135	FASSGSGTE	50232
HPV45	L2	441	LWPWYYYPKKRKR	48136	WYYYPKKR	50233
HPV45	L2	280	MDIIRLHRPALSSRR	48137	IRLHRPALS	50234
HPV45	L2	182	NIFVGITPSGSHGYE	48138	VGITPSGSH	50235
HPV45	L2	162	NPAFSDPSIIEVPQT	48139	FSDPSIIEV	50236
HPV45	L2	256	NPAYPELDTTSLSEP	48140	YEPLDTTSL	50237
HPV45	L2	234	NOQVRVSTSQFLTHP	48141	VRVSTSQFL	50238
HPV45	L2	82	NTVDVGTPRPVVI	48142	VDVGTPRPP	50239
HPV45	L2	390	NVTVPLTSAWDVPY	48143	VPLTSAWDV	50240
HPV45	L2	141	PAVLDTPTVDSVSI	48144	LDITPTVDS	50241
HPV45	L2	407	PDILPSTHPMWPST	48145	ILPSTHPMW	50242
HPV45	L2	168	PSIEVPQTGEVSGN	48146	IEVPQTGEV	50243
HPV45	L2	364	PSTIHKSFTYPKYSL	48147	HKSFYTPK	50244
HPV45	L2	93	PVIEPVGPTDPSIV	48148	IEPVGPTDP	50245
HPV45	L2	294	RGTVRFSLRQGRATM	48149	VRFSRLGQR	50246
HPV45	L2	452	RKRIPYFADGFVAA	48150	IPYFADGF	50247
HPV45	L2	91	RPPVIEPVGPTDPS	48151	VVIEPVGPT	50248
HPV45	L2	319	RVHFYHDISPIAATE	48152	FYHDISPIA	50249
HPV45	L2	277	SDFMDIIRLHRPALS	48153	MDIIRLHRP	50250
HPV45	L2	370	SFTYPKYSLTMPSTA	48154	YPKYSLTMP	50251
HPV45	L2	180	SGNIFVGTPTSQSHG	48155	IFVGTPTSQ	50252
HPV45	L2	192	SHGYEIEPLQTFASS	48156	YEEIPLQTF	50253
HPV45	L2	52	SLGIFLGLGIGTGS	48157	IFLGLGIG	50254
HPV45	L2	377	SLTMPSTAASSYSNV	48158	MPSTAASSY	50255
HPV45	L2	81	SNTVVDVGTPRPVV	48159	VVDVGTPRP	50256
HPV45	L2	242	SQFLTHPSSSLVTFDN	48160	LTHPSSSLV	50257
HPV45	L2	249	SSLVTFDNPAVEPLD	48161	VTFDNPAVE	50258
HPV45	L2	113	SSVVASGAPVPTFTG	48162	VASGAPVPT	50259
HPV45	L2	332	TEEIEQLPISATND	48163	IELQLISA	50260
HPV45	L2	210	TEPISSTPLPTVRRV	48164	ISSTPLPTV	50261
HPV45	L2	140	TPAVLDTPTVDSVS	48165	VLDITPTVD	50262
HPV45	L2	415	TPMWPSTSPSTNASTT	48166	WPSTSPSTNA	50263
HPV45	L2	147	TPTVDSVSISSSTFT	48167	VDSVSISSST	50264
HPV45	L2	128	TSGFEITSSGTTTPA	48168	FEITSSGTT	50265
HPV45	L2	241	TSQFLTHPSSSLVTFD	48169	FLTHPSSSLV	50266
HPV45	L2	429	TTYIGHGTQYLYWP	48170	IGHGTQYY	50267
HPV45	L2	150	VDSVSISSSTFTNPA	48171	VSISSTSTFT	50268
HPV45	L2	320	VHFYHDISPIAATEE	48172	YHDISPIAA	50269
HPV45	L2	401	VPIYTGPDILPSIIT	48173	YTGPDILP	50270
HPV45	L2	221	VRRVRGPRLYSRANQ	48174	VRGPRLYSR	50271
HPV45	L2	107	VTLEDSSVVASGAP	48175	VEDSSVVAS	50272
HPV45	L2	84	VVDVGTPRPVVIIEP	48176	VGTPRPVV	50273
HPV45	L2	353	YADFPFPASTTPTI	48177	FPPASTTP	50274

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	L2	259	YEPLDTTSLSEPTSN	48178	LDTTLSFER	50275
HPV45	L2	323	YHIDISPIAATEEIEL	48179	ISPIAAATEE	50276
HPV45	L2	373	YPKYSLTMPSTAASS	48180	YSLTMPSTA	50277
HPV45	L2	388	YSNVTVPLTSAWDVP	48181	VTPLTSAW	50278
HPV56	E2	2	--MVPCLQVCKAKAC	48182	VPCLQVCKA	50279
HPV56	E2	121	AKKFGCKNIWEVHME	48183	FGCKNIWEV	50280
HPV56	E2	44	CEELWLTEPKCKFKK	48184	LWLTEPKKC	50281
HPV56	E2	126	CKNIWEVHMENESIY	48185	IWEVHMENE	50282
HPV56	E2	7	CLQVCKAKACSAJEV	48186	VCKAKACSA	50283
HPV56	E2	16	CSAIEVQIALESIST	48187	IEVQIALES	50284
HPV56	E2	95	CSGVDYRGIIYVHDG	48188	VDYRGIIYV	50285
HPV56	E2	88	DCGWQKVCSGVDYRG	48189	WQKVCSGVD	50286
HPV56	E2	137	ESIYCPDSVSSTCRY	48190	YCPDSVSST	50287
HPV56	E2	131	EVHMENESIYCPDSV	48191	MENESIYCP	50288
HPV56	E2	20	EVOIALESISTIYN	48192	IALESISTT	50289
HPV56	E2	257	FQKYKTLFVDVTSTY	48193	YKTLFVDVT	50290
HPV56	E2	62	HIEVWFDGSKNMCQ	48194	VWFDGSKNN	50291
HPV56	E2	284	ITIIYKDETQNSFL	48195	IKDETQRN	50292
HPV56	E2	302	KIPVVYRLVWDK---	48196	VVYRLVWDK	50293
HPV56	E2	261	KTLFVDVTSTYHWT	48197	FVDVTSTYH	50294
HPV56	E2	81	KYIYNGDCGWQKVC	48198	YNGDCGWQ	50295
HPV56	E2	298	LSHVKIPVVYRLVWD	48199	VKIPVVYRL	50296
HPV56	E2	75	MOYVAWKYIYNGDC	48200	VAWKYIYYN	50297
HPV56	E2	35	NEEWTLRDTCEELWL	48201	WTLRDTCEE	50298
HPV56	E2	136	NESIYCPDSVSSTCR	48202	YCPDSVSST	50299
HPV56	E2	278	NKNYSIITHYKDET	48203	YSIITHYK	50300
HPV56	E2	295	NSFLSHVKIPVVYRL	48204	LSHVKIPVV	50301
HPV56	E2	22	QIALESISTIYNNE	48205	LESLSSTIY	50302
HPV56	E2	150	RYNVSPVETVNEYNT	48206	VSPVETVNE	50303
HPV56	E2	254	RYRFQKYKTLFVDVT	48207	FOKYKTLFV	50304
HPV56	E2	172	STSVGNQDAAVSHRP	48208	VGNQDAAVS	50305
HPV56	E2	148	TCRYNVSPVETVNEY	48209	YNVSPVETV	50306
HPV56	E2	262	TLFVDVTSTYHWTST	48210	VDTSTYHWT	50307
HPV56	E2	268	TSTYHWTSTDNKNYS	48211	YHWTSTDNK	50308
HPV56	E2	156	VETVNEYNTHKTTT	48212	VNEYNTHKT	50309
HPV56	E2	159	VNEYNTHKTTT	48213	YNTHKTTT	50310
HPV56	E2	5	VPCLQVCKAKACSAI	48214	LQVCKAKAC	50311
HPV56	E2	260	YKTLFVDVTSTYHWT	48215	LFVDVTSTY	50312
HPV56	E6	46	AEVYNFACTELKLVY	48216	YNFACTELK	50313
HPV56	E6	135	AHGWTGSCLCGWRQT	48217	WTGSCLCGW	50314
HPV56	E6	63	DFPYAVCRVCLLFYS	48218	YAVCRVCLL	50315
HPV56	E6	104	DLIRCYRCQSLTP	48219	IRCYRCQSP	50316
HPV56	E6	31	DLRLSCVYCKELTR	48220	LSCVYCKKE	50317
HPV56	E6	86	DYSVYGATLESITKK	48221	VYGATLESI	50318
HPV56	E6	26	EIPLIDRLSCVYCK	48222	LIDRLSCV	50319
HPV56	E6	131	FHLIAHGWTGSCLCG	48223	IAHGWTGSC	50320
HPV56	E6	27	IPLIDRLSCVYCKK	48224	IDLRLSCVY	50321
HPV56	E6	107	IRCYRCQSLTPPEEK	48225	YRCQSLTP	50322
HPV56	E6	40	KKELTRAEVYNFACT	48226	LTRAEVYNF	50323
HPV56	E6	99	KKQLCDLLIRCYRCQ	48227	LCDLLIRCY	50324

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV56	E6	57	KLVRDDFPYAVCRV	48228	YRDDFPYAV	50325
HPV56	E6	81	KYRYDYSVYGATLE	48229	YDYSVYGA	50326
HPV56	E6	94	LESITKKQLCDLIR	48230	ITKKQLCDL	50327
HPV56	E6	29	LIDLRLSCVYCKKEL	48231	LRLSCVYCK	50328
HPV56	E6	21	LSEVLEIPLIDLRLS	48232	VLEIPLIDL	50329
HPV56	E6	65	PYAVRCVCLLFYSKV	48233	VCRCVCLLFY	50330
HPV56	E6	45	RAEVYNFACTELKLV	48234	VYNFACTEL	50331
HPV56	E6	61	RDDFPYAVCRVCLLF	48235	FPYAVCRVC	50332
HPV56	E6	35	SCVYCKKELTRAEVY	48236	YCKKELTRA	50333
HPV56	E6	22	SEVLEIPLIDLRLSC	48237	LEIPLIDLRL	50334
HPV56	E6	71	VCLLFYSKVRKYRY	48238	LFYSKVRKY	50335
HPV56	E6	24	VLEIPLIDLRLSCVY	48239	IPLIDLRLS	50336
HPV56	E6	48	VYNFACTELKLVYRD	48240	FACTELKLV	50337
HPV56	E6	84	YYDYSVYGATLESIT	48241	YSVYGATLE	50338
HPV56	E7	1	---MHGKVPITLQDVV	48242	MHGKVPITLQ	50339
HPV56	E7	96	ALTVCPLCASSN--	48243	VTCPCLCASS	50340
HPV56	E7	71	CKFVVQLDIQSTKED	48244	VVQLDIQST	50341
HPV56	E7	61	CYLHVPCCECKFVV	48245	IHVPCCECK	50342
HPV56	E7	85	DLRVVQQLLMGALTIV	48246	VVQQLLMGA	50343
HPV56	E7	59	HTCYLIHVPCCECKF	48247	YLHVPCCE	50344
HPV56	E7	63	LIHVPCCECKFVVQL	48248	VPCECKFV	50345
HPV56	E7	11	LQDVVLELTPQTEID	48249	VVLELTPQT	50346
HPV56	E7	86	LRVVQQLLMGALTIVT	48250	VQQLLMGAL	50347
HPV56	E7	94	MGALTIVTCPLCASN	48251	LTIVTCPLCA	50348
HPV56	E7	12	QDVVLELTPQTEIDL	48252	VLELTPQTE	50349
HPV56	E7	91	QLLMGALTIVTCPLCA	48253	MGALTIVTCP	50350
HPV56	E7	90	QQLLMGALTIVTCPLC	48254	LMGALTIVTC	50351
HPV56	E7	60	TCYLHVPCCECKFV	48255	LIHVPCCEC	50352
HPV56	E7	8	VPTLQDVVLELTPQT	48256	LQDVVLELT	50353
HPV56	E7	89	VQQLMGALTIVTCPL	48257	LLMGALTIVT	50354
HPV56	E7	74	VVQLDIQSTKEDLRV	48258	LDIQSTKED	50355
HPV56	L1	1	---MMLPMMYIYRDP	48259	MMLPMMYIY	50356
HPV56	L1	3	-MMLPMMYIYRDPPL	48260	LPMMYIYRD	50357
HPV56	L1	301	AGKYGETIPAEELYK	48261	VGETIPAEEL	50358
HPV56	L1	432	ANLLEDWNIGLSPPV	48262	LEDWNIGLS	50359
HPV56	L1	29	AVNVFPIFLQMATWR	48263	VFPFLQMA	50360
HPV56	L1	104	AYQYRVRVRLPDNP	48264	YRVRVRLP	50361
HPV56	L1	22	CIFLDVGAVNVPIF	48265	LDVGAVNVF	50362
HPV56	L1	222	CPPLALINTPIEDGD	48266	LALINTPIE	50363
HPV56	L1	14	DPPLHYGLCIFLDVG	48267	LHYGLCIFL	50364
HPV56	L1	63	DSYVVKRTSIFVHAGS	48268	VKRTSIFVH	50365
HPV56	L1	484	DVNLQDSFSTDLDOF	48269	LQDSFSTDL	50366
HPV56	L1	437	DWNIGLSPPVATSL	48270	IGLSPPVAT	50367
HPV56	L1	451	EDKYRYVRSTAITCQ	48271	YRYVRSTAI	50368
HPV56	L1	407	ELQFVFLCKITLSA	48272	FVFLCKIT	50369
HPV56	L1	46	ENKVVLPPTPVSKVV	48273	VLPPTPV	50370
HPV56	L1	256	EVPLDIVQSTCKYPD	48274	LDIVQSTCK	50371
HPV56	L1	242	FGAMDFKVLQESKAE	48275	MDFKVLQES	50372
HPV56	L1	247	FKVLQESKAEVPLDI	48276	LQESKAEVP	50373
HPV56	L1	24	FLDVGAVNVFPIFLQ	48277	VGAVNVFPI	50374

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV56	L1	36	FLOMATWRPSENKVV	48278	MATWRPSEN	50375
HPV56	L1	160	FNRLDDTESSNLANN	48279	LDDTESSNL	50376
HPV56	L1	33	PFIFLOMATWRPSEN	48280	FLOMATWRP	50377
HPV56	L1	482	FWDVNLQDSFSTDLD	48281	VNLQDSFST	50378
HPV56	L1	151	GAGLSGHPFLNRLDD	48282	LSGHPFLNR	50379
HPV56	L1	203	GEHWTKGAVCKSTQV	48283	WTKGAVCKS	50380
HPV56	L1	141	GLEVGRGQPLGAGLS	48284	VGRGQPLGA	50381
HPV56	L1	363	GNQLFVTVDTRST	48285	LFVTVDTT	50382
HPV56	L1	147	GQPLGAGLSGHPFN	48286	LGAGLSGHP	50383
HPV56	L1	254	KAEPPLDIVQSTCKY	48287	VPLDIVQST	50384
HPV56	L1	119	KFGLPDTNIYNPDQE	48288	LPDTNIYNP	50385
HPV56	L1	416	KITLSAEVMAYLHNM	48289	LSAEVMAYL	50386
HPV56	L1	96	KTNIPIKVSAYQYRVF	48290	IPKVSAYQY	50387
HPV56	L1	48	KVYLPPTPVSKVVAT	48291	LPPTPVSKV	50388
HPV56	L1	479	KYKFWDVNLQDSFST	48292	FWDVNLQDS	50389
HPV56	L1	453	KYRVVRSATITCORE	48293	YVRSTAITC	50390
HPV56	L1	477	LAKYKFWDVNLQDSF	48294	YKFWDVNLQ	50391
HPV56	L1	21	LCIFLDVGAVNVFPI	48295	FLDVGAVNV	50392
HPV56	L1	193	LCIVGCTPAMGEHWT	48296	VGCTPAMGE	50393
HPV56	L1	435	LEDWNIGLSPPVATS	48297	WNIGLSPPV	50394
HPV56	L1	427	LHNMNANLLEDWNIG	48298	MNANLLEDW	50395
HPV56	L1	400	LRHVEYEELQFVQL	48299	VEYEELQFV	50396
HPV56	L1	388	LSKYDARKINQYLRLH	48300	YDARKINQY	50397
HPV56	L1	424	MAYLHNMNANLLEDW	48301	LHNMNANLL	50398
HPV56	L1	8	MMYIYRDPPLHYGLC	48302	IYRDPPLHY	50399
HPV56	L1	9	MYIYRDPPLHYGLCI	48303	YRDPPLHYG	50400
HPV56	L1	439	NIGLSPPVATSLEDK	48304	LSPPVATSL	50401
HPV56	L1	183	NISVDGKQTQLCIVG	48305	VDGKQTQLC	50402
HPV56	L1	345	NKPYWLQRAQGHNG	48306	YWLQRAQGH	50403
HPV56	L1	47	NKYVLPPTPVSKVVA	48307	YLPTTPVSK	50404
HPV56	L1	229	NTPIEDGDMIDTGF	48308	IEDGDMIDT	50405
HPV56	L1	309	PAELYLKGSNGREPP	48309	LYLKGSNGR	50406
HPV56	L1	224	PLALINTPIEDGDMI	48310	LINTPIEDG	50407
HPV56	L1	258	PLDIVQSTCKYPDYL	48311	IVQSTCKYP	50408
HPV56	L1	7	PMMYIYRDPPLHYGL	48312	YIYRDPPLH	50409
HPV56	L1	117	PNKFGLPDTNIYNPD	48313	FGLPDTNIY	50410
HPV56	L1	324	PSSVYVATPSGSMIT	48314	VYVATPSGS	50411
HPV56	L1	53	PTPVSKVATDSYVK	48315	VSKVATDS	50412
HPV56	L1	132	QERLVWACVGLGVGR	48316	LVWACVGLE	50413
HPV56	L1	497	QFPLGRKFLMQLTGR	48317	LGRKFLMQ	50414
HPV56	L1	409	QFVQLCKITLSAEV	48318	FQLCKITLS	50415
HPV56	L1	192	QLCIVGCTPAMGEHW	48319	IVGCTPAMG	50416
HPV56	L1	365	QLFVTVDTRSTNM	48320	VTVDTRST	50417
HPV56	L1	190	QTQLCIVGCTPAMGE	48321	LCIVGCTPA	50418
HPV56	L1	106	QYRVFRVRLPDNPKF	48322	VFRVRLPD	50419
HPV56	L1	502	RKFLMQLTGRSKPAV	48323	LMQLGTRSK	50420
HPV56	L1	134	RLVWACVGLGVGRGQ	48324	WACVGLGVG	50421
HPV56	L1	333	SCSMITSEAOQLFNKP	48325	MITSEAOQLF	50422
HPV56	L1	70	SIFYHAGSSRLAVG	48326	YHAGSSRL	50423
HPV56	L1	78	SRLLAVGHPYYSVTK	48327	LAVGHPYYS	50424

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV56	L1	168	SSNLANNVIEDSRD	48328	LANNNVIED	50425
HPV56	L1	325	SSVYVATPSGSMITS	48329	YVATPSGSM	50426
HPV56	L1	492	STDLDQFPLGRKFLM	48330	LDQFPLGRK	50427
HPV56	L1	376	STNMTISTATEQLSK	48331	MTISTATEQ	50428
HPV56	L1	214	STQVTTGDCPPLALI	48332	VTTGDCPPL	50429
HPV56	L1	62	TDSYVKRTSIFYHAG	48333	YVKRTSIFY	50430
HPV56	L1	385	TEQLSKYDARKINQY	48334	LSKYDARKI	50431
HPV56	L1	199	TPAMGEHWTKGAVCK	48335	MGEHWTKGA	50432
HPV56	L1	69	TSIFYHAGSSRLAV	48336	FYHAGSSRL	50433
HPV56	L1	403	VEEYELQFVFLCKI	48337	YELQFVFL	50434
HPV56	L1	32	VFPIQLMATWRPSE	48338	IFQLMATWR	50435
HPV56	L1	411	VFQCKITLSAEVMA	48339	LCKITLSAE	50436
HPV56	L1	109	VFRVRLDPNPKFGLP	48340	VRLPDPNKF	50437
HPV56	L1	27	VGAVNVPIFLQMAT	48341	VNVPIFLQ	50438
HPV56	L1	56	VSKVATDSYVKRTS	48342	VVATDSYVK	50439
HPV56	L1	368	VTVDVTRSTNMTIS	48343	VDTRSTNM	50440
HPV56	L1	284	WFYLRREQLFARHYF	48344	LRREQLFAR	50441
HPV56	L1	268	YPDYLKMSADAYGDS	48345	YLKMSADAY	50442
HPV56	L1	107	YRVFVRRLDPNPKFG	48346	FRVRLDPN	50443
HPV56	L1	454	YRYVRSTAITCQREQ	48347	VRSTAITCQ	50444
HPV56	L1	87	YYSVTKDNTKTNPK	48348	VTKDNTKTN	50445
HPV56	L2	1	---MVAHRATRKRRA	48349	MVAHRATRR	50446
HPV56	L2	2	--MVAHRATRKRKRAS	48350	VAKRATRRK	50447
HPV56	L2	44	ADKILQWGSLSFTYFG	48351	ILQWGSLSFT	50448
HPV56	L2	332	ABEIEMQPLLSANNS	48352	IEMQPLLSA	50449
HPV56	L2	361	APGLSSQSVATPSAH	48353	LSSQSVATP	50450
HPV56	L2	249	ATLVSAADNPLFEGTD	48354	VSADNPLFE	50451
HPV56	L2	409	DIVLPTGPSTWPFVP	48355	LPTGPSTWP	50452
HPV56	L2	45	DKILQWGSLSFTYFGG	48356	LQWGSLSFTY	50453
HPV56	L2	241	DPAFDRPATLVVSAD	48357	FLDRPATLV	50454
HPV56	L2	276	DPDFMIVLHRAFP	48358	FMNIVALHR	50455
HPV56	L2	263	DTSLAFSPSGVAPDP	48359	LAFSPSGVA	50456
HPV56	L2	334	EIEMQPLLSANNSFD	48360	MQPLLSANN	50457
HPV56	L2	197	EIPMQTFAVHGSGETE	48361	MQTFAVHGS	50458
HPV56	L2	112	ESSVIESGAGIPNFT	48362	VIESGAGIP	50459
HPV56	L2	347	FDGLYDIYANIDDEA	48363	LYDIYANID	50460
HPV56	L2	234	FQQVKVTDPAFLDRP	48364	VKVTDP AFL	50461
HPV56	L2	221	FRRIAAPRLYRKAFQ	48365	IAAPRLYRK	50462
HPV56	L2	299	FRRLGRKATIQTRRG	48366	LGRKATIQT	50463
HPV56	L2	54	FTYFGGLGIGTGTGS	48367	FGGLGIGTGTG	50464
HPV56	L2	130	GFEITSSSTTTTPAVL	48368	ITSSSTTTP	50465
HPV56	L2	181	GNILISTPTSGHSY	48369	LISTPTSGI	50466
HPV56	L2	437	GSSEFALWPVYFFRR	48370	FALWPVYFF	50467
HPV56	L2	431	HDVYIQGSSFALWPV	48371	YIQGSSFAL	50468
HPV56	L2	375	HLPIKPSTLSFASNT	48372	IKPSTLSFA	50469
HPV56	L2	321	HYYYDISPIAQAEI	48373	YDISPIAQA	50470
HPV56	L2	192	IHSYEEIPMQTFAVH	48374	YEEIPMQTF	50471
HPV56	L2	47	ILQWGSLSFTYFGGLG	48375	WGSLSFTYFG	50472
HPV56	L2	218	IPGFRRIAAPRLYRK	48376	*FRRIAAPRL	50473
HPV56	L2	84	IVDVTPARPPVIVES	48377	VTPARPPV	50474

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV56	L2	106	IVTLVEESSVIESGA	48378	LVEESSVIE	50475
HPV56	L2	280	MNIVALHRPAFTTR	48379	VALHRPAFT	50476
HPV56	L2	200	MQTFVHSGSGTEPIS	48380	FAVHSGSGTE	50477
HPV56	L2	182	NILISTPTSGHISYE	48381	ISTPTSGIH	50478
HPV56	L2	256	NPLFEGTDTSLAFSP	48382	FEGTDTSLA	50479
HPV56	L2	162	NPLFIDPPVIEAPQT	48383	FIDPPVIEA	50480
HPV56	L2	242	PAFLDRPATLVADN	48384	LDRPATLVS	50481
HPV56	L2	141	PAVLDTITPTSTVHV	48385	LDITPTST	50482
HPV56	L2	277	PDMNIVALHRPAFT	48386	MNIVALHRP	50483
HPV56	L2	408	PDIVLPTGPSTWPFV	48387	VLPSTGPSTW	50484
HPV56	L2	93	PIVVESVGPTDPSIV	48388	VESVGPTDTP	50485
HPV56	L2	163	PLFIDPPVIEAPQTG	48389	IDPPVIEAP	50486
HPV56	L2	168	PPVIEAPQTGEVSGN	48390	IEAPQTGEV	50487
HPV56	L2	81	PSTIVDVTPARPIV	48391	IVDVTPARP	50488
HPV56	L2	40	OKTWADKILQWGSIF	48392	WADKILQWG	50489
HPV56	L2	338	QPLLSANNSFDGLYD	48393	LSANNSFDG	50490
HPV56	L2	71	RAGYVPLGSRPSTIV	48394	YVPLGSRPS	50491
HPV56	L2	294	RGGRFSLRGLRKKATI	48395	VRFSRLGRK	50492
HPV56	L2	231	RKAQQVKVTDPAFL	48396	FQQVKVTDTP	50493
HPV56	L2	453	RKRIPYFADGDVAA	48397	IPYFADGD	50494
HPV56	L2	91	RPIPVESVGPTDPS	48398	IPVESVGPT	50495
HPV56	L2	319	RVHYYYDISPIAQAE	48399	YYDISPIA	50496
HPV56	L2	373	SAHLPIKPSTLSFAS	48400	LPIKPSTLS	50497
HPV56	L2	128	SGGEITSSSTTTTPA	48401	FEITSSSTT	50498
HPV56	L2	180	SGNILISTPTSGHIS	48402	ILISTPTSG	50499
HPV56	L2	265	SLAFSPSGVAPDPDF	48403	FSPSGVAPD	50500
HPV56	L2	366	SQSVATPSAHLPIKP	48404	VATPSAHLP	50501
HPV56	L2	150	SSTVHVSSTHITNPL	48405	VHVSSTHIT	50502
HPV56	L2	82	STIVDVTPARPIV	48406	VDVTPARPP	50503
HPV56	L2	23	TCKLSGTCPCEDVVNK	48407	LSGTCPCEDV	50504
HPV56	L2	210	TEPISSTPIPGFRRI	48408	ISSTPIPGF	50505
HPV56	L2	202	TEAVHSGSGTEPISST	48409	VHSGSGTEPI	50506
HPV56	L2	176	TGEVSGNILISTPTS	48410	VSGNILIST	50507
HPV56	L2	430	THDVYIQGSSFALWP	48411	VYIQGSSFA	50508
HPV56	L2	382	TLSFASNTTNVTAPL	48412	FASNTTNVT	50509
HPV56	L2	161	TNPLFIDPPVIEAPQ	48413	LFIDPPVIE	50510
HPV56	L2	140	TPAVLDITPTSTVH	48414	VLDITPTSS	50511
HPV56	L2	402	TPFYSGPDIVLPTGP	48415	YSGPDIVLP	50512
HPV56	L2	18	TQLYKTCCKLSGTCPE	48416	YKTCCKLSGT	50513
HPV56	L2	152	TVHVSSTHITNPLFI	48417	VSSSTHITNP	50514
HPV56	L2	418	TWPFVQSPYDVTHD	48418	FVPQSPYDV	50515
HPV56	L2	96	VESVGPTDPSIVTLV	48419	VGPTDPSIV	50516
HPV56	L2	320	VHYYYDISPIAQAE	48420	YYDISPIAQ	50517
HPV56	L2	143	VLDITPTSSSTVHVS	48421	ITPTSSSTVH	50518
HPV56	L2	107	VTLVEESSVIESGAG	48422	VEESSVIES	50519
HPV56	L2	354	YANIDDEAPGLSSQS	48423	IDDEAPGLS	50520
HPV56	L2	74	YVPLGSRPSTIVDVT	48424	LGSRPSTIV	50521

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E1	531	CWNYIDDNLNRNALDG	50522	YIDNLRNA	50853
HPV16	E1	369	DNDIVDDSEIAYKYA	50523	IVDDSEIAY	50854
HPV16	E1	33	GDAISDDENENDSDT	50524	ISDDENEND	50855
HPV16	E1	332	ISEVYGDTPEWIQRQ	50525	VYGDTPEWI	50856
HPV16	E1	520	KIGMLDDATVPCWNY	50526	MLDDATVPC	50857
HPV16	E1	113	LKAICIEKQSRRAKR	50527	ICIEKQSR	50858
HPV16	E1	19	NGWFYVEAVVEKKTG	50528	FYVEAVVEK	50859
HPV16	E1	305	PMCMIEPPKLRSTA	50529	MMIEPPKLR	50860
HPV16	E1	592	PNEPFDENGPNVE	50530	PFDENGNP	50861
HPV16	E1	401	QAKIVKDCATMCRHY	50531	IVKDCATMC	50862
HPV16	E1	365	QWAYDNDIVDDSEIA	50532	YDNDIVDDS	50863
HPV16	E1	622	RLSLHEDEKENDGD	50533	LHEDEKEN	50864
HPV16	E1	127	RRLFESEDSGYGNT	50534	FESEDSGYG	50865
HPV16	E1	52	VDFIVDNDYLTQAE	50535	IVDNDYLT	50866
HPV16	E1	588	VFTPNFPFDENG	50536	FPNFPFDE	50867
HPV16	E1	428	WIKYRCDRVDDGGDW	50537	YRCDRVDDG	50868
HPV16	E2	229	AVALGTEETQTTQR	50538	LGTEETQTT	50869
HPV16	E2	77	ELQLTLETYNSQYS	50539	LTLTYNS	50870
HPV16	E2	121	EVQFDGDCNTMHT	50540	FDGDCNTM	50871
HPV16	E2	171	FVQFKDDAEKYSKNK	50541	FKDDAEKYS	50872
HPV16	E2	159	GLYVYVHIEGIRTYFVQ	50542	YVHIEGIRTY	50873
HPV16	E2	139	HIYICEEASVTVEG	50543	ICEEASVT	50874
HPV16	E2	291	IVHLKGDANTLKCLR	50544	LKGDANTLK	50875
HPV16	E2	335	IVTLTYDSEWQRDQF	50545	LYDSEWQR	50876
HPV16	E2	115	KHGYTVEVQFDGDC	50546	YTVEVQFDG	50877
HPV16	E2	97	LQDVSLEVYLTAPT	50547	VSLEVYLT	50878
HPV16	E2	19	LTHYENDSTDLRHI	50548	YENDSTDLR	50879
HPV16	E2	87	NSQYSNEKWTQLQDYS	50549	YSNEKWTQLQ	50880
HPV16	E2	10	RLNVCDKILTHYEN	50550	VCQDKILTH	50881
HPV16	E2	138	THIYICEEASVTVE	50551	YICEEASVT	50882
HPV16	E2	257	TKLLHRDSVDSAPIL	50552	LHRDSVDSA	50883
HPV16	E2	337	TLTYDSEWQRDQFLS	50553	YDSEWQRDQ	50884
HPV16	E2	119	TVEVQFDGDCNTMH	50554	VQFDGDCN	50885
HPV16	E2	36	WKHMRLECAIYYKAR	50555	MRLECAIYY	50886
HPV16	E6	33	IHDILECVYCKQQL	50556	ILECVYCK	50887
HPV16	E6	60	LCIVYRDGNPYAVCD	50557	YVRDGNPYA	50888
HPV16	E6	22	LPQLCTELQTTIHI	50558	LCTELQTTI	50889
HPV16	E6	45	QQLLRREVYDFAFRD	50559	LRREVYDFA	50890
HPV16	E6	8	RTAMFQDPQERPKL	50560	MFQDPQERP	50891
HPV16	E7	1	---MHGDTPTLHEYM	50561	MHGDTPTLH	50892
HPV16	E7	11	LHEYMLDLQPETDL	50562	YMLDLQPET	50893
HPV16	E7	15	MLDLQPETTDLYCYE	50563	LQPETTDLY	50894
HPV16	E7	23	TDLYCYEQLNDSSEE	50564	YCYEQLNDS	50895
HPV16	L1	276	FFYLRRREQMFVRHLF	50565	LRREQMFVR	50896
HPV16	L1	297	GENVPDDLYIKSGS	50566	VPDDLYIKG	50897
HPV16	L1	326	GSMVTSDAQIFNKPY	50567	VTSDAQIFN	50898
HPV16	L1	220	INTVIQDGDMDVTGF	50568	VIQDGDMDVD	50899
HPV16	L1	14	ITCYENDVNVYHIF	50569	YENDVNVYH	50900
HPV16	L1	481	KEKFSADLDQPLGR	50570	FSADLDQFP	50901
HPV16	L1	409	KITLTADVMTYHSM	50571	LTADVMTYI	50902

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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	L1	246	KSEVPLDICTSICKY	50572	VPLDICTSI	50903
HPV16	L1	424	NSTILEDWNFLQPP	50573	ILEDWNFGL	50904
HPV16	L1	48	SKVSTDEYVARTNI	50574	VSTDEYVAR	50905
HPV16	L1	31	SLWLPSEATVYLPV	50575	LPSEATVYL	50906
HPV16	L1	117	TSFYNPDTQRVLVWAC	50576	YNPDQRVLV	50907
HPV16	L1	129	WACVGEVGRGQPLG	50577	VGVEVGRGQ	50908
HPV16	L1	263	YIKMVSEPYGDSLFF	50578	MVSEPYGDS	50909
HPV16	L2	373	ADDFITDTSITPVS	50579	FITDTSITP	50910
HPV16	L2	108	IVSLVEETSFIDAGA	50580	LVEETSFID	50911
HPV16	L2	326	KVHYYYDFSTDSAE	50581	YYYDFSTID	50912
HPV16	L2	465	LPYFFSDVSLAA---	50582	FFSDVSLAA	50913
HPV16	L2	368	LYDIYADDFITDTS	50583	IYADDFITD	50914
HPV16	L2	439	QYTIADAGDFYLHP	50584	IIADAGDFY	50915
HPV16	L2	93	RPPLTVDPVPGSPDPS	50585	LTVDPVGPS	50916
HPV16	L2	277	SINIAPDPDFLDIVA	50586	IAPDPDFLD	50917
HPV16	L2	250	TKLITYDNPA YEGID	50587	ITYDNPA YE	50918
HPV16	L2	126	VPSIPPDVSGFSITT	50588	IPPDVSGFS	50919
HPV16	L2	369	YDIYADDFITDTS	50589	YADDFITD	50920
HPV16	L2	196	YEEIPMDTFIVSTNP	50590	IPMDTFIVS	50921
HPV16	L2	260	YEGIDVNTLYFSSN	50591	IDVDNTLYF	50922
HPV18	E1	75	AOEVHNDQAQVLHLK	50592	VHNDQAQVLH	50923
HPV18	E1	376	DNELTDESDFMAFEYA	50593	LTDESDFMAF	50924
HPV18	E1	382	ESDMAFEYALLADSN	50594	MAFEYALLA	50925
HPV18	E1	388	EYALLADSNNAAAF	50595	LLADSNNA	50926
HPV18	E1	32	GDVISEDENATD	50596	ISDDEDNA	50927
HPV18	E1	103	GERLEVDTLSPLRLQ	50597	LEVDTLSPL	50928
HPV18	E1	339	ISEVMGDTPEWIRL	50598	VMGDTPEWI	50929
HPV18	E1	527	KVAMLDADATTCWTY	50599	MLDDATTC	50930
HPV18	E1	217	MLAVFKDTYGLSFTD	50600	VFKDTYGLS	50931
HPV18	E1	599	PNAPFDKNGNPVYE	50601	PFDKNGNP	50932
HPV18	E1	408	QAKYLKDCATMCKHY	50602	YLKDCATMC	50933
HPV18	E1	372	QWAFDNELTDESMA	50603	FDNELTDES	50934
HPV18	E1	629	RDLHEEEDADTEG	50604	LHEEEDAD	50935
HPV18	E1	105	RLEVDTLSPLRLQEI	50605	VDTELSPL	50936
HPV18	E1	31	TGDVISEDENATD	50606	VISDDEEN	50937
HPV18	E1	515	TSHFWEPLTDTKVA	50607	FWLEPLTDT	50938
HPV18	E1	233	VRNFKSDKTCTDWV	50608	FKSDKTCT	50939
HPV18	E2	164	GLYVYKEGYNTFYIE	50609	YVKEGYNTF	50940
HPV18	E2	292	IIHLKGRNSLKLGR	50610	LKGRNSLKL	50941
HPV18	E2	136	MTYVAWDSVYYMTDA	50611	VAWDSVYYM	50942
HPV18	E2	91	QSKRYKTEDWTLDTC	50612	YKTEDWTLD	50943
HPV18	E2	143	SVYYMTDAGTWDKTA	50613	YMTDAGTWD	50944
HPV18	E2	123	TVQVYFDGNKNCMT	50614	VYFDGNKDN	50945
HPV18	E2	337	TVTYHSETQRTKFLN	50615	YHSETQRTK	50946
HPV18	E2	40	WQLRWENAIFFAAR	50616	IRWENAIFF	50947
HPV18	E2	176	YIEFKSECEKYGNTG	50617	FKSECEKYG	50948
HPV18	E6	55	LFVVYRDSIPHAACH	50618	VYRDSIPHA	50949
HPV18	E6	17	LPDLCTELNTSLQDI	50619	LCTELNTSL	50950
HPV18	E6	85	SDSVYGDITLEKLTNT	50620	VYGDITLEKL	50951
HPV18	E7	13	DIVLHLEPQNEIPVD	50621	LHLEPQNEI	50952

Table XXa
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV18	E7	21	QNEIPVDLLCHEQLS	50622	IPVDLLCHE	50953
HPV18	E7	74	RIKLVESSADDLRA	50623	LVESSADD	50954
HPV18	E7	26	VDLLCHEQLSDSEE	50624	LCHEQLSDS	50955
HPV18	L1	83	ARVNTDDYVITPSI	50625	VNTDDYVTP	50956
HPV18	L1	311	FECLRREQLFARHFW	50626	LRREQLFAR	50957
HPV18	L1	361	GSIVTSDSQLFNPKPY	50627	VTSDSQLFN	50958
HPV18	L1	281	KCEVPLDICQSIKCY	50628	VPLDICQSI	50959
HPV18	L1	517	KEKFSLDLDQYPLGR	50629	FSLDLDQYP	50960
HPV18	L1	519	KESLDLDQYPLGRKF	50630	LDLDQYPLG	50961
HPV18	L1	255	KNTVLEDGDMVDITGY	50631	VLEDGDMVD	50962
HPV18	L1	460	NSSILEDWNFGVPPP	50632	ILEDWNFGV	50963
HPV18	L1	445	TITLTADVMSYIISM	50633	LTADVMSYI	50964
HPV18	L1	152	TSIYNPETORLVWAC	50634	YNPETORLV	50965
HPV18	L1	298	YLQMSADPYGDSMFF	50635	MSADPYGDS	50966
HPV18	L2	351	FDIYADMDPAVPVP	50636	YADMDPAV	50967
HPV18	L2	106	IVTLIEDSSVVTSGA	50637	LIEDSSVVT	50968
HPV18	L2	350	RPPVIEPVGTDPS	50638	IYADMDPA	50969
HPV18	L2	91	LFDIYADMDPAVPV	50639	VVIEPVGPT	50970
HPV18	L2	319	RVIHYHIDISPIASP	50640	FYHIDISPIA	50971
HPV18	L2	249	SSLITYDNPAFEPVD	50641	ITYDNPAFE	50972
HPV18	L2	454	VVPYFFADGFAA---	50642	FFADGFAA	50973
HPV31	E1	413	CDKVSDEGDWRDIVK	50643	VSDEGDWRD	50974
HPV31	E1	349	DNDVMDDEIAKYA	50644	VMDDEIAIY	50975
HPV31	E1	32	GDNISEDENEDSSDT	50645	ISEDENEDS	50976
HPV31	E1	312	ISDVYGETPEWIERQ	50646	VYGETPEWI	50977
HPV31	E1	500	KIGMLDDATTPCWYH	50647	MLDDATTPC	50978
HPV31	E1	268	KNRITTEKLEKLLC	50648	ITIEKLEK	50979
HPV31	E1	112	LKAICIENNSKTAKR	50649	ICIENNSKT	50980
HPV31	E1	18	NGWFYEAVIDRQTG	50650	FYVEAVIDR	50981
HPV31	E1	572	PNPFPDKNGNPVYE	50651	FPDKNGNP	50982
HPV31	E1	381	QAKIVKDCGTMCRHY	50652	IVKDCGTM	50983
HPV31	E1	144	QQMVQVEEQTTLSC	50653	VQVEEQTT	50984
HPV31	E1	345	QWAYDNDVMDDEIA	50654	YDNDVMDDS	50985
HPV31	E1	602	RLNLHBEEDKENDGD	50655	LHBEEDKEN	50986
HPV31	E2	77	ELQMMLETNLNTEYK	50656	MMLETNLNT	50987
HPV31	E2	200	ESVFSSEISFAGIV	50657	FSSSEISFA	50988
HPV31	E2	139	FIYLCIDGQCTVVEG	50658	LCIDGQCTV	50989
HPV31	E2	298	IIHLKGDANILKCLR	50659	LKGDANILK	50990
HPV31	E2	115	KHGVTVEVQFDGDVH	50660	YTVVEVQFDG	50991
HPV31	E2	262	NKLLRGDSVDSVNCG	50661	LRGDSVDSV	50992
HPV31	E2	87	NTEYKNEDWTMQTS	50662	YKNEDWTMQ	50993
HPV31	E2	194	QVIVFPSESVFSSDEL	50663	VFPSESVFS	50994
HPV31	E2	10	RLNVCQDKILEHYEN	50664	VCQDKILEH	50995
HPV31	E2	119	TVEVQFDGDVHNTMH	50665	VQFDGDVHN	50996
HPV31	E2	36	WKHRLCEVLMYKAR	50666	IRLECVLMY	50997
HPV31	E6	21	ALEIPYDELRLNCVY	50667	IPYDELRLN	50998
HPV31	E6	53	LTIVYRDDTPHGVCT	50668	VYRDDTPHG	50999
HPV31	E6	54	TVYRDDTPHGVCTK	50669	YRDDTPHGV	51000
HPV31	E7	1	---MRGETPTLQYV	50670	MRGETPTLQ	51001
HPV31	E7	78	DIRILQELLMGSFGI	50671	ILQELLMGS	51002

Table XXa
DR 3a Submotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	E7	11	LQDYVLDLQPEATDL	50672	YVLDLQPEA	51003
HPV31	E7	15	VLDLQPEATDLHCYE	50673	LQPEATDLH	51004
HPV31	L1	251	FFYLRRQMFVRHFF	50674	LRREQMFVR	51005
HPV31	L1	272	GESVPTDLYIKSGS	50675	VPTDLYIKG	51006
HPV31	L1	301	GSMVTSDAQIFNKPY	50676	VTSDAQIFN	51007
HPV31	L1	446	KDYVFWEVNLEKFS	50677	VFEVNLKE	51008
HPV31	L1	456	KEKFSADLDQFPLGR	50678	FSADLDQFP	51009
HPV31	L1	384	KITLSADIMTYIHISM	50679	LSADIMTYI	51010
HPV31	L1	195	KNSVIQDQDGMVDTGF	50680	VIQDQDMVD	51011
HPV31	L1	221	KSNVPLDICNSICKY	50681	VPLDICNSI	51012
HPV31	L1	399	NPAILEDWNFLGTTT	50682	ILEDWNFLG	51013
HPV31	L1	22	SKVSTDEYVTRINI	50683	VSTDEYVTR	51014
HPV31	L1	92	TSFYNPETQRLVWAC	50684	YNPETQRLV	51015
HPV31	L1	104	WACVGLVGRGQPLG	50685	VGLEVGRGQ	51016
HPV31	L1	238	YLKMAEPPYGDITLFF	50686	MVAEPPYGD	51017
HPV31	L2	361	DTDFTVDTATHNVS	50687	FTVDTPTH	51018
HPV31	L2	409	GPDVPIEHAPTQVEP	50688	VPIEHAPTQ	51019
HPV31	L2	108	IVSLVEESGIVDVGA	50689	LVEESGIVD	51020
HPV31	L2	245	KOLITYENPAYETVN	50690	ITYENPAYE	51021
HPV31	L2	355	LYDIYADTFTVDTP	50691	IYADTFTV	51022
HPV31	L2	432	QVSIFVDGGDFYLHP	50692	IFVDGGDFY	51023
HPV31	L2	93	RPPVSDIPVGPLDPS	50693	VSIDPVGPL	51024
HPV31	L2	319	RVHYYYDISSINPAG	50694	YYYDISSIN	51025
HPV31	L2	270	SHNIAPDPDFLDIA	50695	IAPDPDFLD	51026
HPV31	L2	458	VSYFFTDVSVAA---	50696	FFTDVSVAA	51027
HPV31	L2	191	YEEIPMDTFTVSTNN	50697	IPMDTFTVS	51028
HPV31	L2	255	YETVNAEESLYFSNT	50698	VNAEESLYF	51029
HPV33	E1	362	DNELTDDSDIAYYA	50699	LTDDSDIAY	51030
HPV33	E1	170	DSEVSCETNVDSCE	50700	VSCETNVDS	51031
HPV33	E1	59	ENSIQADTEAARALF	50701	IQADTEAAR	51032
HPV33	E1	298	ETCMVIEPPKLRST	50702	MVIEPPKLR	51033
HPV33	E1	32	GNISEDEDETADDS	50703	ISEDEDETA	51034
HPV33	E1	513	KIGMIDDVTPISWTY	50704	MIDDVTPIS	51035
HPV33	E1	615	KLDLIEEDKENHGG	50705	LIEEDKEN	51036
HPV33	E1	585	KNPPPFDEGNPVYA	50706	PPFDENGNP	51037
HPV33	E1	50	LLEFIDDSMENSIOA	50707	FIDDSMENS	51038
HPV33	E1	260	LQCLTCDRGHILL	50708	LTCDRGIII	51039
HPV33	E1	394	QAKIVKDCGIMCRHY	50709	IVKDCGIMC	51040
HPV33	E1	358	QWAYDNELTDDSDIA	50710	YDNELTDDS	51041
HPV33	E1	164	SSGVGGDDSEVSCETN	50711	VGGDDSEVSC	51042
HPV33	E1	524	SWTYIDDMRNALDGG	50712	YIDDMRNA	51043
HPV33	E1	18	TGWEVEAVIERRTG	50713	FEVEAVIER	51044
HPV33	E1	219	VRPFKSKTCTDWC	50714	FKSKTCTCT	51045
HPV33	E1	597	VYAINDENWKSFFSR	50715	INDENWKSF	51046
HPV33	E2	139	EIYIIEEDTCTMTVG	50716	IIEDTCTMT	51047
HPV33	E2	77	ELQMALETLSKSQYS	50717	MALETLSKS	51048
HPV33	E2	171	FKYFKEDAAYSKYTK	50718	FKEDAAYSK	51049
HPV33	E2	138	GEIYIIEEDTCTMVT	50719	YIIEEDTCT	51050
HPV33	E2	279	IVHLKGESNSLKCLR	50720	LKGESNSLK	51051
HPV33	E2	140	IYIIEEDTCTMTVGK	50721	IIEDTCTMTV	51052

Table XXa
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Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	E2	19	LDLYEADKTDLP	50722	YADKTDLP	51053
HPV33	E2	212	TADIQTDNDNRPPQA	50723	IQTDNDNR	51054
HPV33	E2	244	TKLFCADPALDNR	50724	FCADPALD	51055
HPV33	E2	325	TVTFVTEQQQMFLG	50725	FVTEQQQM	51056
HPV33	E2	119	TVTVQYDNDKNTMD	50726	VQYDNDKKN	51057
HPV33	E2	36	WKLIRMECALYK	50727	IRMECALLY	51058
HPV33	E2	170	YFKYFKEDAAYSKT	50728	YFKEDAAY	51059
HPV33	E6	1	---MFQDTEEKPRIL	50729	MFQDTEKP	51060
HPV33	E6	53	LTVVYREGNPFICK	50730	VYREGNPF	51061
HPV33	E7	11	LKEYVLDLYPEPTDL	50731	YVLDLYPEP	51062
HPV33	E7	23	TDLYCYEQLSDSSD	50732	YCYEQLSDS	51063
HPV33	E7	15	VLDLYPEPTDLYCYE	50733	LYPEPTDLY	51064
HPV33	L1	348	CTQVTSDSYKKNENF	50734	VTSDSYKN	51065
HPV33	L1	354	DSYKKNENFKEYIRH	50735	YKKNENFKEY	51066
HPV33	L1	250	FFFLRRREQMFVRHFF	50736	LRREQMFVR	51067
HPV33	L1	271	GEAVPDDLYIKSGT	50737	VPDDLYIKG	51068
HPV33	L1	300	GSMVTSESOLFKNPY	50738	VTSESOLF	51069
HPV33	L1	393	IHAMNPDILEDWQFG	50739	MNPDILEDW	51070
HPV33	L1	194	INTIIEDGDMVD	50740	IIEDGDMVD	51071
HPV33	L1	220	KEFSADLDQFPLGR	50741	FSADLDQFP	51072
HPV33	L1	454	KSDVPIDICGSTCKY	50742	VPIDICGST	51073
HPV33	L1	382	KVTLTAEVMTYHAM	50743	LTAEVMTYI	51074
HPV33	L1	397	NPDILEDWQFGLTPP	50744	ILEDWQFGL	51075
HPV33	L1	22	SKVVSTDEYVSR	50745	VSTDEYVSR	51076
HPV33	L1	92	TSFYNPDQRLVWAC	50746	YNPDQRLV	51077
HPV33	L1	104	WACVGLGIRGQPLG	50747	VGLEIRGQ	51078
HPV33	L1	237	YLMKMTSEPYGDSLFF	50748	MTSEPYGDS	51079
HPV33	L2	338	DHTVPNEQYELQPLH	50749	VPNEQYELQ	51080
HPV33	L2	433	FDITVVDGADFLHP	50750	IVVDGADFL	51081
HPV33	L2	260	PESFDPEDTLQFQHS	50751	FPEDTLQF	51082
HPV33	L2	250	HKLITYDNPAFESFD	50752	ITYDNPAFE	51083
HPV33	L2	107	IVSLIETSFIAGA	50753	LIETSFIE	51084
HPV33	L2	365	LYDVYADDVDNVHTP	50754	VYADDVDNV	51085
HPV33	L2	324	RIHYQDLSPIVPLD	50755	YYQDLSPIV	51086
HPV33	L2	92	RPPVTVDTVGPLDSS	50756	VTVDTVGPL	51087
HPV33	L2	428	SPFPFDITIVVDGAD	50757	FPFDITIVVD	51088
HPV33	L2	332	SPVPLDHTVPNEQY	50758	VPLDHTVNP	51089
HPV33	L2	203	TFVVSIDSNNVTSST	50759	VSTDSSNVT	51090
HPV33	L2	366	YDVYADDVDNVHTPM	50760	YADDVDNVH	51091
HPV33	L2	196	YENIPMDTFVVSSTDS	50761	IPMDTFVVS	51092
HPV33	L2	74	YVPIGTDPTTAIPL	50762	IGTDPTTAA	51093
HPV45	E1	75	AQEVQNDAAQLHLLK	50763	VQNDAAQLH	51094
HPV45	E1	362	DNDLTDESMAFQYA	50764	LTDESMAF	51095
HPV45	E1	298	ETCMLIEPPKLRSSV	50765	MLIEPPKLR	51096
HPV45	E1	32	GDVISDDEDETATDT	50766	ISDDEDETA	51097
HPV45	E1	103	GEQLSVDTDLSPLRQ	50767	LSVDTDLS	51098
HPV45	E1	325	ISEVSGDTPWQRL	50768	VSGDTPW	51099
HPV45	E1	513	KVAMLDADATHTCWTY	50769	MLDDATHTC	51100
HPV45	E1	203	MLAVFKDIYGLSFTD	50770	VFKDIYGLS	51101
HPV45	E1	18	NGWFFVETIVEKKTG	50771	FFVETIVEK	51102

Table XXa
DR 3a Submotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV45	E1	501	NSIFWLEPLADTKVA	50772	FWLEPLADT	51103
HPV45	E1	585	PHAFPKNGNPVYE	50773	PFDFKNGNP	51104
HPV45	E1	394	QAKYDKDCAMCRHY	50774	YLKDCAVMC	51105
HPV45	E1	105	QLSVDTDLSPRLQEI	50775	VDLDLSPRL	51106
HPV45	E1	358	QWAFDNDLTDES DMA	50776	FDNDLTDES	51107
HPV45	E1	615	RDLHDEDEADTEG	50777	LHDEDEAD	51108
HPV45	E1	31	TGDISDDEDEATD	50778	VISDDEDET	51109
HPV45	E1	219	VRNFKSDKTTCTDWV	50779	FKSDKTTCT	51110
HPV45	E2	166	GVYYIKDGDITVYVQ	50780	YIKDGDITV	51111
HPV45	E2	296	IHLKGDKNLSKCLR	50781	LKGDKNLSK	51112
HPV45	E2	138	MNYVWDSIYYITET	50782	VVWDSIYYI	51113
HPV45	E2	93	QSKYNNEEWTLODTC	50783	YNNEEWTLO	51114
HPV45	E2	145	SIYYTETGIWDKTA	50784	YTETGIWD	51115
HPV45	E2	125	TVHVYFDGNKDN CMN	50785	VYFDGNKDN	51116
HPV45	E2	340	TVTYNSEVQRNITFLD	50786	YNSEVQRNT	51117
HPV45	E2	42	WQJRLLENAILFTAR	50787	IRLENAILF	51118
HPV45	E2	178	YVQFKSECEKYGNSN	50788	FKSECEKYG	51119
HPV45	E6	55	LFIVYRDCIAYAACH	50789	VYRDCIAYA	51120
HPV45	E6	17	LPDLCTELNTSLQDV	50790	LCTELNTSL	51121
HPV45	E6	85	SNSVYGETLEKITNT	50791	VYGETLEKI	51122
HPV45	E7	13	EIVLHLEPQNELDPV	50792	LHLEPQNEL	51123
HPV45	E7	75	RIELTVESSADDLRT	50793	LTVESSADD	51124
HPV45	E7	27	VDLLCYEQLSESEE	50794	LCYEQLSES	51125
HPV45	L1	48	ARVNTDDYVSRISI	50795	VNTDDYVSR	51126
HPV45	L1	277	FFCLRRQLFARHEW	50796	LRREQLFAR	51127
HPV45	L1	298	GDTVPTDLYIKGTSA	50797	VPTDLYIKG	51128
HPV45	L1	247	KCEVPLDICQSICKY	50798	VPLDICQSI	51129
HPV45	L1	485	KEKFSDDLQYPLGR	50799	FSSDDLQYP	51130
HPV45	L1	221	KNTHIEDGDMVDVTGY	50800	IIEDGDMVD	51131
HPV45	L1	293	RAGVMGDTVPTDLYI	50801	VMGDTVPTD	51132
HPV45	L1	118	STIYNPETQLRWAC	50802	YNPETQLRV	51133
HPV45	L1	413	TITLTAEVMSYIHISM	50803	LTAEVMSYI	51134
HPV45	L1	130	WACVGMIEIGRGQPLG	50804	VGMEIGRGQ	51135
HPV45	L2	264	YLQMSADPYGDSMFF	50805	MSADPYGDS	51136
HPV45	L2	263	DTLTSFPTSNVPDS	50806	LSFPTSNV	51137
HPV45	L2	455	IPYFFADGFVAA---	50807	FFADGFVAA	51138
HPV45	L2	106	IVTLVEDSSVVASGA	50808	LVEDSSVVA	51139
HPV45	L2	349	LPDVYADFPPASTT	50809	VYADFPPA	51140
HPV45	L2	91	RPVVIIEPVGPTDPS	50810	VVIEPVGPT	51141
HPV45	L2	319	RVIIFYHDISPIAATE	50811	FYHDISPIA	51142
HPV45	L2	249	SSLVTFDNPAYEPLD	50812	VTFDNPAYE	51143
HPV56	E2	137	ESIYCPDSVSSTCRY	50813	YCPDSVSST	51144
HPV56	E2	131	EVHMENESIYCPDSV	50814	MENESIYCP	51145
HPV56	E2	20	EVQIALESLSITTYN	50815	IALESLSIT	51146
HPV56	E2	62	HIEVWFDGSKNNCMQ	50816	VWFDGSKNN	51147
HPV56	E2	110	HKTYYYTDFEQAKKF	50817	YYTDFEQEA	51148
HPV56	E2	284	ITIIYKDETQRNSFL	50818	YKDETQRN	51149
HPV56	E2	129	IWEVHMENESIYCPD	50819	VHMENESIY	51150
HPV56	E2	53	KKCFKKEGQHIEVWF	50820	FKKEGQHIE	51151
HPV56	E2	285	TIYKDETQRNSFLS	50821	YKDETQRNS	51152

DR 3a Submotif Peptides
Table XXa

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV56	E2	30	TTIYNNEEWTLRDTIC	50822	YNNEEWTLR	51153
HPV56	E2	240	VVILKGEPRNLKCCR	50823	LKGEPRNLK	51154
HPV56	E2	82	YIYNGDCGWOKVCS	50824	YNGDCGWOK	51155
HPV56	E2	260	YKTLFVDVISTYHWT	50825	LFVDVISTY	51156
HPV56	E6	57	KLVRDDDFPYAVCRV	50826	YRDDDFPYAV	51157
HPV56	E6	56	LKLVYRDDDFPYAVCR	50827	VYRDDDFPYA	51158
HPV56	E7	72	KFVVQLDIQSTKEDL	50828	VQLDIQSTK	51159
HPV56	E7	11	LQDVVLELTPTQTEID	50829	VVLELTPTQT	51160
HPV56	L1	305	GETIPAELEYLKGSNG	50830	IPAELEYLKG	51161
HPV56	L1	20	GLCIFLDVGAVNVFP	50831	IFLDVGAVN	51162
HPV56	L1	334	GSMITSEAQLFNKPY	50832	ITSEAQLFN	51163
HPV56	L1	254	KAEPVPLDIVQSTCKY	50833	VPLDIVQST	51164
HPV56	L1	416	KITLSAEVMAYLHNM	50834	LSAEVMAYL	51165
HPV56	L1	8	MMYIYRDPPLHYGLC	50835	IYRDPPLHY	51166
HPV56	L1	431	NANLLEDWNIGLSPP	50836	LLEDWNIGL	51167
HPV56	L1	488	QDSFSTDLDQFPLGR	50837	FSTDLDQFP	51168
HPV56	L1	57	SKVVATDSYVKRTSI	50838	VATDSYVKR	51169
HPV56	L1	125	TNIYNPDQERLVWAC	50839	YNPDQERLV	51170
HPV56	L1	137	WACVGLVGRGQPLG	50840	VGLEVGRGQ	51171
HPV56	L1	284	WFLRREQLFARHYF	50841	LRREQLFAR	51172
HPV56	L1	271	YLKMSADAYGDSMWF	50842	MSADAYGDS	51173
HPV56	L1	87	YYSVTKDNTKTNIPK	50843	VTKDNTKTN	51174
HPV56	L2	249	ATLVSADNPLFEGTD	50844	VSADNPLFE	51175
HPV56	L2	456	IPYFFADGDVAA---	50845	FFADGDVAA	51176
HPV56	L2	106	IVTLVEESSVIESGA	50846	LVBESSVIE	51177
HPV56	L2	270	PSGVAPDPDFMNI/A	50847	VAPDPDFMN	51178
HPV56	L2	426	PYDVTHDVTYIQSSF	50848	VTHDVTYIQG	51179
HPV56	L2	91	RPPIVVESVGTDPIS	50849	IVVESVGTPT	51180
HPV56	L2	319	RVHYYYDISPIAQAE	50850	YYYDISPIA	51181
HPV56	L2	161	TNPLFDPPVIEAPQ	50851	LFIDPPVIE	51182
HPV56	L2	354	YANIDDEAPGLSSQS	50852	IDDEAPGLS	51183

Table XXb
DR3b Submotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV16	E1	115	AICIEKQSRRAAKRRL	51184	IEKQSRRAAK	51334
HPV16	E1	545	GNLVSMDEVKHRPLVQ	51185	VSMDEVKHRP	51335
HPV16	E1	478	LYGAANTGKSLFGMS	51186	AANTGKSLF	51336
HPV16	E1	570	NINAGTDSRWPLYLN	51187	AGTDSRWPY	51337
HPV16	E1	602	NPVYELNDKNWKSFF	51188	YELNDKNWK	51338
HPV16	E1	145	QQMLQVEGRHETETP	51189	LOVEGRHET	51339
HPV16	E1	247	TPSIADSIKTLQY	51190	IADSIKTL	51340
HPV16	E1	532	WNYIDNLRNALDGN	51191	IDNLRNAL	51341
HPV16	E1	23	YVEAVVEKKTGDAIS	51192	AVVEKKTGD	51342
HPV16	E2	125	DGDICTMHTYTNWTH	51193	ICTMHTYN	51343
HPV16	E2	270	ILTAFNSSHIKGRNC	51194	AFNSSHKGR	51344
HPV16	E2	167	IRTYFVQFKDDAEKY	51195	YFVQFKDDA	51345
HPV16	E2	271	LTAFNSSHKGRINC	51196	FNSSHKGRI	51346
HPV16	E2	346	RDQFLSQVKIPKTTT	51197	FLSQVKIPK	51347
HPV16	E2	315	YTAVSSSTWHWTGHN	51198	VSSSTWHWTG	51348
HPV16	E6	26	CTELQTTIHIDLEC	51199	LQTTIHDI	51349
HPV16	E6	117	QKPLCPEEKQRHLDK	51200	LCPEEKQRH	51350
HPV16	L1	165	AANAGVDNRECISMD	51201	AGVDNRECI	51351
HPV16	L1	359	FVTVDTRSTNMSL	51202	VVDTRSTN	51352
HPV16	L1	440	GGTLEDYRFVTSQA	51203	LEDYRFVT	51353
HPV16	L1	141	PLGVGISGHPLLNKL	51204	VGISGHPLL	51354
HPV16	L1	173	RECISMDYKQQLCL	51205	ISMDYKQQTQ	51355
HPV16	L1	452	SQAIAQCQKHTPPAPK	51206	IACQKHTPP	51356
HPV16	L2	18	ATQLYKTCCKAGTCP	51207	LYKTCCKQAG	51357
HPV16	L2	293	HRPALTSRRRTGIRYS	51208	ALTSRRRTGI	51358
HPV16	L2	7	KRSAKRTKRASATQL	51209	AKRTKRASA	51359
HPV16	L2	349	PSTYTTTSHAALPTS	51210	YTTTSHAAL	51360
HPV18	E1	229	FTDLVRNFKSKDTTC	51211	LVNFKSDK	51361
HPV18	E1	552	GNPISIDRKHKLPIQ	51212	ISIDRKHKP	51362
HPV18	E1	509	ISFVNSTSHFWLEPL	51213	VNSTSHFWL	51363
HPV18	E1	205	KDLLKVNKKQGAMLA	51214	LKVNKKQGA	51364
HPV18	E1	471	KSFLKGTPKKNCLVF	51215	LKGTPKKNC	51365
HPV18	E1	609	NPVYEINDKNWKCFF	51216	YEINDKNWK	51366
HPV18	E1	571	PILLTTNIHPAKDNR	51217	LTTNIHPAK	51367
HPV18	E1	22	YVQAIVDKKTGDVIS	51218	AIVDKKTGD	51368
HPV18	E2	23	IDHYENDSKDIDSQI	51219	YENDSKDID	51369
HPV18	E2	333	TGILTVTYHSETQRT	51220	LTVTYHSET	51370
HPV18	E2	172	YNTFYIEFKSECEKY	51221	FYIEFKSEC	51371
HPV18	E2	316	YRDISSTWIHTGAGN	51222	ISSTWIHTG	51372
HPV18	E6	134	AGHYRGQCHSCCNRA	51223	YRGQCHSCC	51373
HPV18	E7	54	ARRAEPQRHTMLCMC	51224	AEPQRHTML	51374
HPV18	L1	552	APSATTSSKPAKVR	51225	ATTSSKPAK	51375
HPV18	L1	495	KDAAPAEKNKDPYDKL	51226	APAENKDPY	51376
HPV18	L1	176	PLGVGLSGHPFYNKL	51227	VGLSGHPFY	51377
HPV18	L1	208	RDNVSVDYKQTQLCI	51228	VSDYKQTQ	51378
HPV18	L1	200	TSNVSEDRDNNVSD	51229	VSEDRDNNV	51379
HPV18	L1	476	TTSVLVDTYRFVQSA	51230	LVDTYRFVQ	51380
HPV18	L2	263	DTLTDFDPRSDVPS	51231	LTFDPRSDV	51381
HPV18	L2	286	HRPALTSRRRTGVRFS	51232	ALTSRRGTV	51382
HPV18	L2	17	VTDLYKTCCKSGTCP	51233	LYKTCCKSG	51383

Table XXb
DR3b Submotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV31	E1	114	AICIENSKTAKRRL	51234	IENSKTAK	51384
HPV31	E1	103	CVDYNISPRKKA	51235	YNISPRKA	51385
HPV31	E1	525	GNPVSIDVKHAKMQ	51236	VSIDVKHKA	51386
HPV31	E1	458	IHGAPNTGKSYFGMS	51237	APNTGKSYF	51387
HPV31	E1	533	KHKALMQLKCPPLLI	51238	ALMQLKCPP	51388
HPV31	E1	550	NINAGKDDRWPLYLHS	51239	AGKDDRWPY	51389
HPV31	E1	582	NPVYELSDKNWKSFF	51240	YELSDKNWK	51390
HPV31	E2	125	DGDVHNTMHTYTNWKF	51241	VHNTMHTYN	51391
HPV31	E2	121	EVQFDGDVHNTMHTY	51242	FDGDVHNTM	51392
HPV31	E2	171	FVNFTEEAKKYGTGK	51243	FTEEAKKYG	51393
HPV31	E2	159	GIYVVEGHITYFVN	51244	YVVEGHITY	51394
HPV31	E2	19	LEHYENDSKRLCDHI	51245	YENDSKRLC	51395
HPV31	E2	345	LYIYSTSQRDDFLNT	51246	ISTSQRDDF	51396
HPV31	E2	353	RDDFLNTVKIPNTVS	51247	FLNTVKIPN	51397
HPV31	E2	239	VRRATTSTKRPRTEP	51248	ATTSTKRPR	51398
HPV31	E2	322	YEQVSSVTHWCTDGG	51249	VSSTVHWTC	51399
HPV31	E6	110	QRPLCPEEKQRHLDK	51250	LCPEEKQRH	51400
HPV31	E7	57	IVTFCCQCKSTLRLC	51251	FCCQCKSTL	51401
HPV31	L1	213	DFTALQDTKSNVPLD	51252	ALQDTKSNV	51402
HPV31	L1	334	FVTVDITRSTNMSV	51253	VVDITRSTN	51403
HPV31	L1	116	PLGVGISGHPLLNKF	51254	VGISGHPLL	51404
HPV31	L1	148	RECISMDYKQTQLCL	51255	ISMDYKQTQ	51405
HPV31	L1	415	SGSLEDTYRFVTSQA	51256	LEDTYRFVT	51406
HPV31	L2	18	ATQLYQTCKAAGTGP	51257	LYQTCKAAG	51407
HPV31	L2	286	HRPALTSRRNTVRS	51258	ALTSRRNTV	51408
HPV31	L2	170	PTPAETSGHLLLSSS	51259	AETSGHLLL	51409
HPV31	L2	263	SLYFSNTSHINAPDP	51260	FSNTSHNIA	51410
HPV31	L2	73	TGYVPLSTRPSTVSE	51261	VPLSTRPST	51411
HPV31	L2	226	YSKATQVKKVIDPTF	51262	ATQVKKVID	51412
HPV33	E1	22	EVEAVIERRTGDNIS	51263	AVIERRTGD	51413
HPV33	E1	538	GNEISIDVKHRLVQ	51264	ISIDVKHRA	51414
HPV33	E1	635	KCSAGENTRSLRS--	51265	AGENTRSLR	51415
HPV33	E1	546	KHRALVQLKCPPLLL	51266	ALVQLKCPP	51416
HPV33	E1	616	LDLIEEDKENHGGN	51267	IEEDKENH	51417
HPV33	E1	563	NTNAGTDSRWPLYLHS	51268	AGTDSRWPY	51418
HPV33	E1	240	SPSVAESLKVLIKQH	51269	VAESLKVLI	51419
HPV33	E2	42	ECALLYTAKQMGFSH	51270	LLYTAKQMG	51420
HPV33	E2	334	QQMFLGTGVKIPPTVQ	51271	FLGTGVKIP	51421
HPV33	E2	121	TVQYDNDKKNITMDYT	51272	YDNDKKNITM	51422
HPV33	E2	303	YSSMSSTVHWTSNDK	51273	MSSTVHWTS	51423
HPV33	E5	62	LPMMCINFHQAQMTQ	51274	MCINFHAQH	51424
HPV33	E6	19	COALETTTHNIELOC	51275	LETTTHNIE	51425
HPV33	E6	88	GNTLEQTVKKPLNEI	51276	LEQTVKKPL	51426
HPV33	E6	119	KRHVDLNKRPHNISG	51277	VDLNKRPHN	51427
HPV33	E6	110	QRPLCPEEKRRHVDL	51278	LCPEEKRRH	51428
HPV33	L1	333	FVTVDITRSTNMTL	51279	VVDITRSTN	51429
HPV33	L1	36	IYYAGSSRLLAUGH	51280	YAGSSRLLA	51430
HPV33	L1	483	KRAAPTSTRTSSAKR	51281	APTSTRTSS	51431
HPV33	L1	116	PLGVGISGHPLLNKF	51282	VGISGHPLL	51432
HPV33	L1	148	RECLSM DYKQTQLCL	51283	LSMDYKQTQ	51433

Table XXb
DR3b Submotif Peptides

Type	Protein	Position	Sequence	Sequence Id. No.	Core Sequence	Core Seq. Id. No.
HPV33	L1	413	SASLQDTYRFRVTSQA	51284	LQDTYRFRVT	51434
HPV33	L2	17	ATQLYQTCATGTCTP	51285	LYQTCATG	51435
HPV33	L2	242	DPALTSPhKLITYD	51286	FLTSPHKLI	51436
HPV33	L2	459	FPYFFTDVRAA---	51287	FFTDVRAA	51437
HPV33	L2	291	HRPAITSRRHTVRFSS	51288	AITSRRTTV	51438
HPV33	L2	175	PAPAEASGHFIFFSP	51289	AEASGHFIF	51439
HPV45	E1	215	FTDLVRNFKSDKTTTC	51290	LVRNFKSDK	51440
HPV45	E1	538	GNPISIDRKHKPLLQ	51291	ISIDRKHKP	51441
HPV45	E1	495	ISFVNSNSHFWLEPL	51292	VNSNSHFWL	51442
HPV45	E1	457	KEFLKGTPKKNCILL	51293	LKGTPKKNC	51443
HPV45	E1	191	KELLQASNKKAAMLA	51294	LQASNKKAA	51444
HPV45	E1	595	NPVYEINDKNWKCF	51295	YEINDKNWK	51445
HPV45	E2	174	DTTYVYQFKSECEKY	51296	YVYQFKSEC	51446
HPV45	E2	48	ENAILFTAREHGITK	51297	ILFTAREHG	51447
HPV45	E2	25	LDHYENDSKDINSQI	51298	YENDSKDIN	51448
HPV45	E2	256	QCGLTEQHGHGRVNTI	51299	LTEQHGRV	51449
HPV45	E2	320	YSEISSTWHWTGCKN	51300	ISSTWHWTG	51450
HPV45	E6	130	FHSIAGQYRGQCNTC	51301	IAGQYRGQC	51451
HPV45	E7	55	ARRAEPQRHKLVCV	51302	AEQRHKL	51452
HPV45	L1	362	FVTVDITTRSTNLT	51303	VVDITTRSTN	51453
HPV45	L1	142	PLGIGLSGHPFNKL	51304	IGLSGHPFY	51454
HPV45	L1	174	RDVNSVDYKQQLCI	51305	VSDYKQQTQ	51455
HPV45	L1	166	TAVITQDVRDNVSVD	51306	ITQDVRDNV	51456
HPV45	L1	444	TTSLVDITRFVQSV	51307	LVDTYRFVQ	51457
HPV45	L2	17	ATDLYRTCKQSGTCTP	51308	LYRTCKQSG	51458
HPV45	L2	306	ATMFRSGKQIGGRV	51309	FTRSGKQIG	51459
HPV45	L2	286	HRPALSSRRGTFRFS	51310	ALSSRRGTV	51460
HPV45	L2	230	YSRANQQRVSTSQF	51311	ANQQRVST	51461
HPV56	E2	264	FVDVTSTYHWTSTDN	51312	VTSTYHWT	51462
HPV56	E2	102	GIYYVHDGHKTYTDT	51313	YVHDGHKTY	51463
HPV56	E2	177	NQDAAVSHRPGKRPR	51314	AAVSHRPGK	51464
HPV56	E2	142	PDSVSTCRYNVSPV	51315	VSSTCRYNV	51465
HPV56	E2	224	SRSINNNHPGDKTT	51316	INNHPGD	51466
HPV56	E2	114	YTDFFEQAQKFGCKN	51317	FEQAQKFG	51467
HPV56	E6	120	EKQLHCDRKRFRHLI	51318	LHCDRKRFR	51468
HPV56	E6	113	QSPLTPEEKQLHCDR	51319	LTPEEKQLH	51469
HPV56	E6	49	YNFACTELKLVYRDD	51320	ACTELKLVY	51470
HPV56	L1	246	DFKVLQESKAEPVLD	51321	VLQESKAEV	51471
HPV56	L1	367	FVTVDITTRSTNMTI	51322	VVDITTRSTN	51472
HPV56	L1	513	KPAVATSKRSAPTS	51323	VATSKRSA	51473
HPV56	L1	259	LDIVQSTCKYPDYLK	51324	VQSTCKYPD	51474
HPV56	L1	173	NNNVIEDSRDNISVD	51325	VIEDSRDNI	51475
HPV56	L1	149	PLGAGLSGHPLFNRL	51326	AGLSGHPLF	51476
HPV56	L1	181	RDNISVDGKQTQLCI	51327	ISVDGKQTQ	51477
HPV56	L1	512	SKPAVATSKRSAPT	51328	AVATSKKRS	51478
HPV56	L2	17	ATQLYKTCCKLSGTCTP	51329	LYKTCCKLSG	51479
HPV56	L2	303	GRKATIQTRRGTOIG	51330	ATIQTRRG	51480
HPV56	L2	286	HRPAFTTRRGGRVFS	51331	AFTTRGGV	51481
HPV56	L2	367	QSVATPSAHLPIKPS	51332	ATPSAHLPI	51482
HPV56	L2	230	YRKAQQQVKVTDPAF	51333	AFQQQKVTD	51483

TABLE XXI. Population coverage with combined HLA Supertypes

HLA-SUPERTYPES	PHENOTYPIC FREQUENCY					
	Caucasian	North American Black	Japanese	Chinese	Hispanic	Average
<u>a. Individual Supertypes</u>						
A2	45.8	39.0	42.4	45.9	43.0	43.2
A3	37.5	42.1	45.8	52.7	43.1	44.2
B7	43.2	55.1	57.1	43.0	49.3	49.5
A1	47.1	16.1	21.8	14.7	26.3	25.2
A24	23.9	38.9	58.6	40.1	38.3	40.0
B44	43.0	21.2	42.9	39.1	39.0	37.0
B27	28.4	26.1	13.3	13.9	35.3	23.4
B62	12.6	4.8	36.5	25.4	11.1	18.1
B58	10.0	25.1	1.6	9.0	5.9	10.3
<u>b. Combined Supertypes</u>						
A2, A3, B7	84.3	86.8	89.5	89.8	86.8	87.4
A2, A3, B7, A24, B44, A1	99.5	98.1	100.0	99.5	99.4	99.3
A2, A3, B7, A24, B44, A1, B27, B62, B58	99.9	99.6	100.0	99.8	99.9	99.8

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TABLE XXII. ACCESSION NUMBERS

HPV16	E1	W1SLHS
HPV16	E2	W2WLHS
HPV16	E5	W5WLHS
HPV16	E6	W6WLHS
HPV16	E7	W7WLHS
HPV16	L1	AAD33259
HPV16	L2	AAD33258
HPV18	E1	W1WL18
HPV18	E2	W2WL18
HPV18	E5	W5WL18
HPV18	E6	W6WL18
HPV18	E7	PO6788
HPV18	L1	CAA28671
HPV18	L2	P2WL18
HPV31	E1	W1WL31
HPV31	E2	W2WL3
HPV31	E5	W5WL31
HPV31	E6	W6WL31
HPV31	E7	W7WL31
HPV31	L1	P1WL31
HPV31	L2	P2WL31
HPV45	E1	S36563
HPV45	E2	S36564
HPV45	E6	CAB44706
HPV45	E7	CAB44707
HPV45	L1	CAB44705
HPV45	L2	S36565
HPV33	E1	W1WL33
HPV33	E2	W2WL33
HPV33	E5	W5WL33
HPV33	E6	W6WL33
HPV33	E7	W7WL33
HPV33	L1	P1WL33
HPV33	L2	P2WL33
HPV56	E2	S36581
HPV56	E6	W6WL56
HPV56	E7	S36580
HPV56	L1	S38563
HPV56	L2	S36582

WHAT IS CLAIMED IS

1. A composition comprising at least one human papillomavirus (HPV) peptide, the peptide comprising an isolated, prepared epitope consisting of a sequence selected from the group consisting of the sequences set out in Tables VII-XVIII that show a relative binding ratio of 0.01 or higher for at least one allele-specific HLA molecule.
2. A composition of claim 1, wherein the epitope is joined to an amino acid linker.
3. A composition of claim 1, wherein the epitope is admixed or joined to a CTL epitope.
4. A composition of claim 1, wherein the epitope is admixed or joined to an HTL epitope.
5. A composition of claim 4, wherein the HTL epitope is a pan-DR binding molecule.
6. A composition of claim 1, further comprising a liposome, wherein the epitope is on or within the liposome.
7. A composition of claim 1, wherein the epitope is joined to a lipid.
8. A composition of claim 1, wherein epitope is a heteropolymer.
9. A composition of claim 1, wherein the epitope is a homopolymer.
10. A composition of claim 1, wherein the epitope is bound to an HLA heavy chain, β 2-microglobulin, and strepavidin complex, whereby a tetramer is formed.
11. A composition of claim 1, further comprising an antigen presenting cell, wherein the epitope is on or within the antigen presenting cell.

12. A composition of claim 11, wherein the epitope is bound to an HLA molecule on the antigen presenting cell, whereby when a cytotoxic T lymphocyte (CTL) that is restricted to the HLA molecule is present, a receptor of the CTL binds to a complex of the HLA molecule and the epitope.

13. A composition of claim 11, wherein the antigen presenting cell is a dendritic cell.

14. A composition comprising one or more peptides, and further comprising at least two epitopes, wherein one of the epitopes is selected from the group consisting of sequences set out in Tables VII-XVIII that show a relative binding ratio of 0.01 or higher for at least one allele-specific HLA molecule; and

wherein each of said one or more peptides comprise less than 50 contiguous amino acids that have 100% identity with a native peptide sequence of human papilloma virus (HPV) strains 16, 18, 31, 45, 33, and 56.

15. A composition of claim 14, wherein one peptide comprises the at least two epitopes.

16. A composition of claim 14, wherein at least one of the one or more peptides is a heteropolymer.

17. A composition of claim 14, wherein at least one of the one or more peptides is a homopolymer.

18. A composition of claim 14, further comprising an additional epitope.

19. A composition of claim 18, wherein the additional epitope is derived from a tumor associated antigen.

20. A composition of claim 18, wherein the epitope is joined to a cytotoxic T lymphocyte (CTL) epitope.

21. A composition of claim 18, wherein the epitope is joined to a helper T lymphocyte (HTL) epitope.
22. A composition of claim 21, wherein the HTL epitope is a pan-DR binding molecule.
23. A composition of claim 14, further comprising a liposome, wherein the epitope is on or within the liposome.
24. A composition of claim 14, wherein the epitope is joined to a lipid.
25. A composition of claim 14, further comprising an antigen presenting cell, wherein the epitope is on or within the antigen presenting cell.
26. A composition of claim 25, wherein the epitope is bound to an HLA molecule on the antigen presenting cell, whereby when a cytotoxic lymphocyte (CTL) that is restricted to the HLA molecule is present, a receptor of the CTL binds to a complex of the HLA molecule and the epitope.
27. A composition of claim 25, wherein the antigen presenting cell is a dendritic cell.
28. A composition of claim 14, further comprising an additional peptide admixed with the one or more peptides.
29. The composition of claim 28, wherein the additional peptide comprises a CTL or HTL epitope.

30. A vaccine composition comprising:

a unit dose of a peptide that comprises less than 50 contiguous amino acids that have 100% identity with a native peptide sequence of human papilloma virus (HPV) strains 16, 18, 31, 45, 33, and 56, the peptide comprising an epitope selected from the group consisting of sequences set out in Tables VII-XVIII that show a relative binding ratio of 0.01 or higher for at least one allele-specific HLA molecule; and;
a pharmaceutical excipient.

31. A vaccine composition in accordance with claim 30, further comprising an additional epitope.

32. A vaccine composition of claim 31, wherein the additional epitope is a PanDR binding molecule.

33. A vaccine composition of claim 30, wherein the pharmaceutical excipient comprises an adjuvant.

34. A vaccine composition of claim 30, further comprising an antigen presenting cell.

35. A vaccine composition of claim 34, wherein the epitope is bound to an HLA molecule on the antigen presenting cell, whereby when a cytotoxic T lymphocyte (CTL) that is restricted to the HLA molecule is present, a receptor of the CTL binds to a complex of the HLA molecule and the epitope.

36. A vaccine composition of claim 35, wherein the antigen presenting cell is a dendritic cell.

37. A vaccine composition of claim 30, further comprising a liposome, wherein the at least one epitope is on or within the liposome.

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DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **INDUCING CELLULAR IMMUNE RESPONSES TO HUMAN PAPILLOMAVIRUS USING PEPTIDE AND NUCLEIC ACID COMPOSITIONS** the specification of which X is attached hereto or _____ was filed on _____ as Application No. _____ and was amended on _____ (if applicable).

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Country	Application No.	Date of Filing	Priority Claimed Under 35 USC 119

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

Application No.	Filing Date
60/172,705	December 10, 1999

I claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Date of Filing	Status

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1 ALESSANDRO SETTE Date	Signature of Inventor 2 JOHN SIDNEY Date	Signature of Inventor 3 SCOTT SOUTHWOOD Date
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